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"GARDENING FOR ALL"
SERIES

Edited by R. P. FAULKNER

ROSES

ROSES

BY

BERTRAM PARK, O.B.E.



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FOREWORD

MR. BERTRAM PARK, the author of this book, is one of those men who engage in few enterprises but make an imposing success of those to which they give their attention. In business life he is a photographer and his art studies and his photographs of celebrities of our day are each masterpieces of their kind. Most of the photographs reproduced in this book are his work.

Mr. Park's hobby is rose-growing and some evidence of the eminence to which he has attained is given by the list of the major awards he secured at the Summer Show of the National Rose Society in 1948. He was awarded the Challenge Cup for The Amateur Championship, the Best Bloom exhibited by an amateur, the Most Meritorious Exhibit in Amateur Classes, the Best Decorative Exhibit of Six Vases, four other First Prizes and two other prizes; truly a remarkable if not a unique record. But the impression must not be gathered from the foregoing recital that Mr. Park is a mere "pot-hunter." His show successes have come as a result of his love for the rose and the study, patience and skill that for years he has bestowed upon it. His knowledge of rare species is accurate and profound, and he is a frequent and valued contributor to the gardening press on many aspects of rose culture. He is, moreover, a very active Vice-President and Member of the Council of the National Rose Society and, since the death of Mr. Courtney Page, he has acted as Honorary Editor of the Society's publications, including *The Rose Annual* with its world-wide distribution.

R. P. FAULKNER

PREFACE

THIS little book is addressed to those gardeners who love Roses but who perhaps have not had sufficient experience in growing them to produce them at their best. It is certainly not a book for the expert rosarian, who needs no advice from me and probably would not take it anyway. To many Rose-growing is a specialist hobby, as it is with me, but the more one learns about Roses the more one appreciates that there is still much to learn. The comparative merits of different methods of cultivation are often perhaps a matter of opinion, but everything I have set down here is based on personal experience, experience of both successes and mistakes. I have made no recommendations of Roses that I have not grown myself, nor have I described any process or method of cultivation which I have not actually practised and proved in my own garden.

If the result of my experiences during thirty years of growing Roses is of use to others then I am only too happy to be able to pass it on. There is no class of people in the world whose company I enjoy more than that of gardeners, for there is no company so friendly and free. The true gardener has no secrets: anything that he has learnt for himself he is ready and willing to impart to others. If there is anything that I in my turn am able to impart which will enable fellow-gardeners to enjoy their Roses more—then an infinite pleasure is mine.

B. P.

CONTENTS

CHAP.		PAGE
	FOREWORD	v
	PREFACE	vii
I.	THE EVOLUTION OF THE MODERN ROSE	i
II.	PLANNING AND PREPARING A ROSE-GARDEN	13
III.	A SELECTION OF MODERN HYBRID TEA ROSES FOR THE GARDEN	23
IV.	THE POLYANTHA ROSES	34
V.	CLIMBERS AND RAMBLERS	39
VI.	THE ROSE AS A FLOWERING SHRUB	46
VII.	PLANTING	53
VIII.	PRUNING	59
IX.	PROPAGATE YOUR OWN PLANTS	74
X.	MANURES AND MANURING	90
XI.	PESTS AND DISEASES	102
XII.	POT-ROSES UNDER GLASS	115
XIII.	ROSE-SHOWS	128
	APPENDIX: THE NATIONAL ROSE SOCIETY.	137
	INDEX	139

PLATES IN COLOUR

PLATE

FACING PAGE

	'CHARLES GREGORY' (H.T.) . . .	<i>Frontispiece</i>
I.	'SANDERS WHITE' (WICHURAIANA RAMBLER) WEeping STANDARD	4
II.	'ENA HARKNESS' (H.T.)	55
III.	'DR. F. G. CHANDLER' (H.T.)	70

CHAPTER I

THE EVOLUTION OF THE MODERN ROSE

“Would Jove appoint some flower to reign
In matchless beauty on the plain,
The Rose (mankind will all agree),
The Rose the Queen of Flowers should be.”

So sang Sappho, the Grecian poetess, about six hundred years before Christ. But the Rose is much older than that, is older indeed than man himself, for fossils of Roses have been found in America which are estimated to be 35,000,000 years old.

The wide distribution of wild Roses over the northern hemisphere and their diversity of form, growth, and general character are further indications of the antiquity of the Rose, for it must have taken millions of years to spread round the world and while so doing to change its character and to adjust itself to the different climatic conditions in all the countries in which it is found to-day. It is impossible to say where its original home was, but wild Roses of widely differing kinds or species are to be found to-day in Abyssinia, the oases of the Sahara, the mountains of Persia, throughout Europe and Asia, and from Arctic Siberia through Korea, Japan, Mongolia, and across China to India. In America they extend from Mexico to the Arctic Circle. It is a strange fact, however, that no Rose has ever crossed the Equator unaided: there is no native Rose in any part of the Southern hemisphere.

The early Greeks sang many poems to the beauties of the Rose, but there must have been Rose-gardens in Crete in a still earlier period, for paintings of the flower

have been found on the walls of the palace of King Midas. The Greek term for Rose is *rhodon*, and the island of Rhodes derives its name from this. English, French, German, Danish, and Norwegian all call the flower a *rose*; it is *rosa* in Italian, Spanish, Portuguese, Russian, and Latin; the Swedish is *ros*, the Dutch *roos*, the Czech *ruže*, the Hungarian *rózsa*. Could there be better evidence of the universality of the Rose? Dried specimens have been found in Egyptian tombs, it was grown in the Gardens of Babylon, there are numerous references to it in the Bible, and in Damascus from the earliest times to the present day the Damask Rose has been distilled for the making of perfumes. Two hundred and fifty years before Christ the Greek doctor Theophrastus wrote about the Rose and its methods of cultivation. In Roman times enormous quantities were grown for the market and it was used at the feasts of the Roman Emperors.

There are few gardening records before the late sixteenth century, but throughout the Middle Ages the Rose was conspicuous in Heraldry. In the thirteenth century the first Earl of Lancaster brought to England the red Rose of Provence (properly Provins) and it was thereafter adopted by the House of Lancaster as their emblem. After the wars of the Roses 1454-61, this was combined with the white Rose of York and became the double red and white Rose, the emblem of the Tudors. Since that time the Royal House of England has always had the Rose as its emblem.

In the late sixteenth century Gerard wrote of nine varieties of roses grown in his garden in Holborn. The story of our modern Rose really starts in the last years of the eighteenth century. Up to that time all known Roses had been summer-flowering only, but there was

then imported from China a wild Rose of that country, *Rosa chinensis*, which was continuous-flowering. It found its way to the Isle of Bourbon in France, where there arose an accidental cross with the French Rose, *R. gallica*, the resulting hybrid becoming known as the Bourbon Rose.

The Hybrid Perpetuals and Tea Roses

In the climate of France this chance cross-fertilization by insects is possible, and the hips ripen so that seeds can be sown the same year in the open ground in a way that is not possible in England. It is on account of this that all the earlier perpetual Roses came from France and had French names. About this time the Empress Josephine established her famous Rose-garden at the Palace of Malmaison, where she had over two hundred-and-fifty varieties of garden Roses, and encouraged Vibert, a nurseryman, to grow and produce more and more new varieties. The Bourbon Rose was brought and planted with the Gallica Roses, the Centifolias, the Damasks, and the Provins. After chance cross-fertilization the hips were gathered and the seeds sown. From the thousands of seedlings good ones were selected, and from them came the first Hybrid Perpetuals, which flowered again in the autumn.

The story then continues from another angle. About the year 1810, a delicate little cultivated hybrid pink garden Rose of unknown origin was brought from China to England. It could not stand our climate but did well in France. A few years later a pale yellow Rose from the same source was also imported into France. Neither of these was of much account, but about 1840 the two were cross-fertilized in a French nursery. One of the seedlings was named 'Adam,' this being the first of the Tea Roses,

so called from a rather fanciful similarity of their scents to the tea in chests brought over by the same merchantmen which brought the original plants from China. Further cultivation and seed-raising soon improved the strain, the characteristics of which were a beautiful, regular shape, pale colourings, and perpetual flowering, but they were only half-hardy and had a delicate constitution little suited to the English climate.

Meanwhile the sturdy, hardy, strong-growing Hybrid Perpetuals were being further developed and were now widely cultivated in England, although most of them originated in France, as is indicated by their names. By the eighteen-sixties this class was at its zenith; growers were beginning to think that no further development was possible and new flowers were merely duplicating older ones. It must be remembered that although they were called Hybrid "Perpetuals" their best flowering was in the summer, and rarely more than a few flowers were produced once more in the autumn. In 1876 the National Rose Society was founded and a Gold Medal and other valuable prizes were offered for improved varieties. This gave the necessary stimulus and our hybridizers set to work more scientifically, using glasshouses, which were essential if this work was to be satisfactorily carried out in England.

Very soon a nurseryman, Henry Bennett, succeeded in raising seedlings from crosses between the Hybrid Perpetuals and the Tea Roses. Thus came the first Hybrid Tea Rose, named 'Viscountess Folkestone.' The next stage in the evolution of the modern Rose came from yet another source. For many years there had been known a pure yellow, buttercup-yellow, wild Rose, which had originally been brought to this country from Persia via Austria, whence it was sometimes unfortunately called the Austrian Brier. This was *R. lutea*, or *R. foetida*—from



FIG. 1. A VASE OF 'PICTURE,' CLEAR PINK

its rather objectionable smell. It was small, about an inch across, single or five-petalled, and the bushes were about 4 ft high. Coming from a sub-tropical climate it was barely hardy in this country, but again it was healthy and free-growing in France. It had a colour then quite unknown in garden Roses and in the year 1900 a French nurseryman, Pernet Ducher, pondering upon this, had a stroke of genius when he took some of its pollen and with it fertilized one of his Hybrid Teas named 'Madame Antoine Ducher.' The resulting seedlings were poor things but they had the new colour, and in the course of a few years he produced the first pure-yellow Rose and named it 'Rayon d'Or.' After this, progress was rapid and a few generations farther on came the first masterpiece in the way of pure yellow Roses, that named 'Julien Potin.' From 'Julien Potin' or its immediate parent, 'Claudius Pernet,' is derived all the pure yellow and orange colour in all of our modern Roses. Pernet Ducher was working at the same time in the pursuit of brilliant colour; this reached its climax in 1913 with the introduction of 'Madame Edouard Herriot,' the first of the flame colours, a mixture of yellow, orange, and scarlet. The English hybridizers then forged ahead and the next outstanding development was the production by the house of McGredy of 'Mrs. Sam McGredy' in 1929.

I wonder if many gardeners realize that all our full yellow and yellow-orange Roses have been introduced less than forty years. But all this progress has not been achieved without some drawbacks. One still hears it said that "modern Roses have no scent"—this in spite of the fact that most of the old Hybrid Perpetuals had no scent at all and the Tea Roses only a trace. The original parent of the yellow-coloured Roses, the Persian Yellow, was scentless and it cannot be denied that whilst colour was

developing fragrance was long left unachieved. This state of affairs, however, really persisted only between the years 1900 and 1920. Would you sacrifice all the glorious colours of our modern Roses on account of a scentless period in those particular colours between 1900 and 1920? In the past thirty years fragrance has gradually been bred back into our new Roses, and it is safe to say that at the present day no Rose can gain the Gold Medal of the National Rose Society and be sent out into commerce with that seal of distinction if it is lacking in fragrance.

In the evolution of the modern Rose the hybridizers have taken advantage of the particular traits of its ancestors to create the most suitable combination of them for the popular demand for the gardens of to-day.

The pedigree illustrated on page 8 traces back the parentage of three outstanding new red Roses to four original species. It is noteworthy that in every case the pollen parent is red, supporting the theory that the male parent influences colour. The *R. chinensis* species is a purplish-pink or light crimson, as is also the *R. damascena*, and this bluish or purplish tint persists until it is met by the descendant of *R. lutea*, when 'Crimson Glory' becomes more scarlet. The parentage of 'Southport' is not published, but the yellow colouring at the base of the petal indicates without any doubt a strain of *R. lutea* descent. When this second influx of *lutea* strain meets 'Crimson Glory' the result is the almost pure scarlet of 'Ena Harkness.'

For some time I have been puzzled as to where the damask fragrance came from in all these red Roses, since it does not exist in *R. chinensis*. I have, however, come across a record that the second parent of 'Jacqueminot' was 'Portland Rose' (also known as 'Rose du Roi') and that the latter was directly descended from *R. damascena* × unknown.

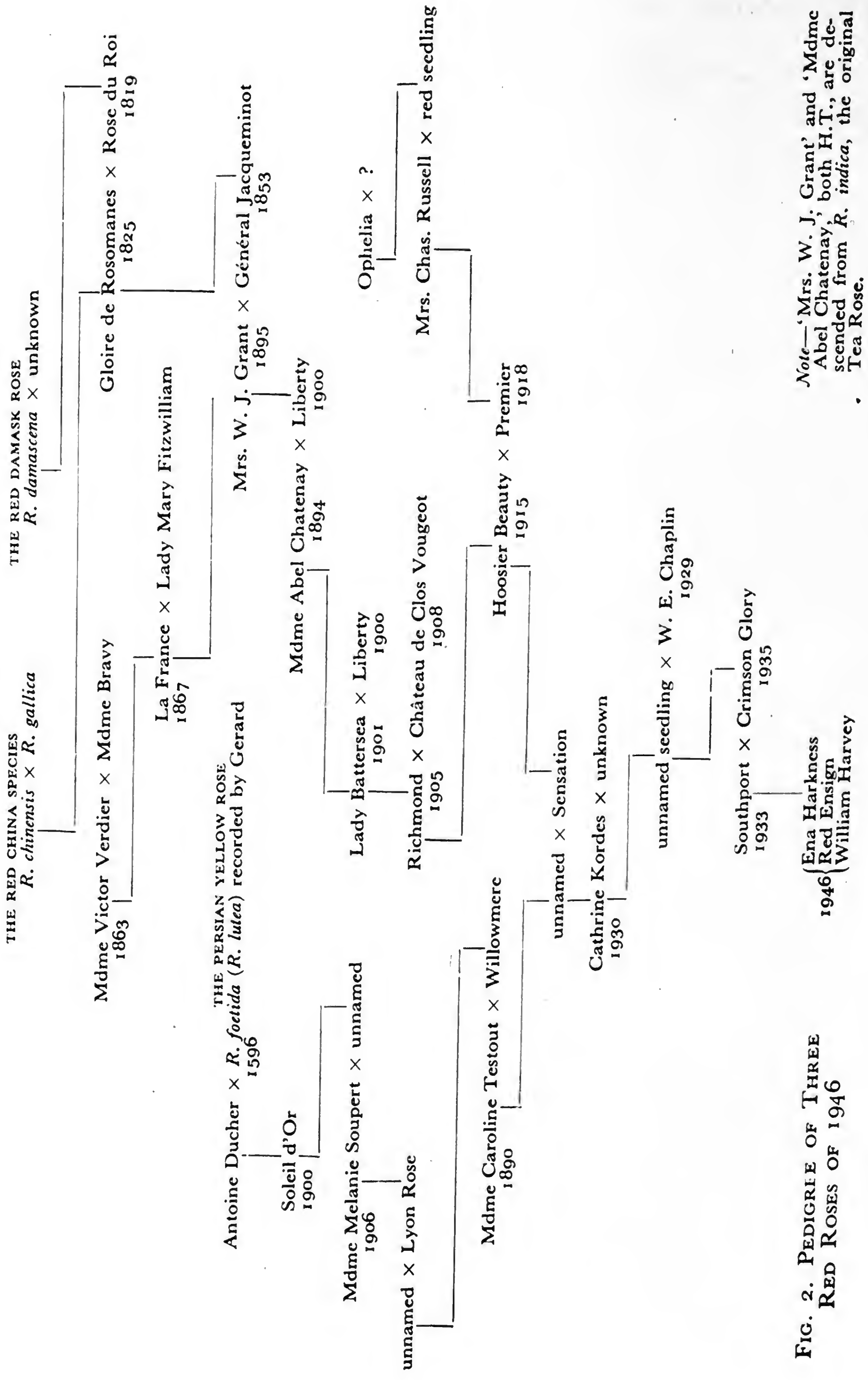


FIG. 2. PEDIGREE OF THREE
RED ROSES OF 1946

Note—'Mrs. W. J. Grant' and 'Mdme Abel Chatenay', both H.T., are descended from *R. indica*, the original Tea Rose.

‘W. E. Chaplin’ is red but scentless, so that in this case the fragrance is transmitted through the seed parent.

The remontant and continuous-blooming qualities and the dwarf habit (unlike the semi-climbing habit of *R. chinensis*) come down through ‘Mrs. W. J. Grant’ and ‘Madame Abel Chatenay’ (Hybrid Teas) from *R. indica*, the original Tea Rose.

Origins of Other Modern Roses

We may briefly trace the history of the other classes of Roses popular to-day. Amongst the seedlings raised from the crossings of the Bourbon Roses came a number of climbers—the original species was a semi-climber and in any batch of seedlings there are always some that have such a tendency. A number of these climbers were raised and grown on, but few survive to-day; they were called Hybrid Bourbons, and one of them, ‘Zéphirine Drouhin’ is still worth planting. Another French grower, M. Noisette, succeeded in crossing the original *R. chinensis* with a European wild Rose, *R. moschata*, the Musk Rose; a number of the seedlings were sent out, but only one, ‘Madame Alfred Carrière,’ still survives. Both of these are particularly good climbing Roses and both are perpetual-flowering. The two principal modern classes of climbing Roses, however, are climbing “sports” and the ramblers. The former are derived from the occasional chance of a vigorous dwarf H.T. suddenly developing abnormal growth and continuing to grow on without blooming until the second year or even longer. ‘Climbing Etoile de Hollande,’ ‘Climbing Shot Silk,’ and similar varieties have all arisen in this way. The ramblers, however, are in quite a different category, all being descended from two wild Roses of Japan.



FIG. 3. A BOWL OF 'BETTY UPRICHARD'

R. wichuraiana is a vigorous-growing rambling and trailing species with insignificant flowers. It was used by Perkins, of the firm of Jackson and Perkins in America, for hybridizing. In 1901 was introduced the first *Wichuraiana* rambling Rose, 'Dorothy Perkins,' and all our present similar varieties such as 'Excelsa,' etc., are descended from that American Rose. The other Japanese species was *R. multiflora japonica* (also called *R. polyantha simplex*), of more upright growth with stiffer branches, and from this has been raised the similar class of Hybrid Polyantha climbers such as 'Paul's Scarlet' and 'Chaplin's Pink.' Numerous seedlings from this species did not climb, however, and grew in quite a different manner, remaining very dwarf; these were crossed with the China Rose and had the everblooming qualities of the latter with the huge clusters of the Japanese species. The first Rose of this class was the Orleans Rose, brought out in 1909. In the next ten years this class was crossed with Hybrid Teas, creating another new class called Hybrid Polyantha. Their introduction was mainly due to the endeavours of Poulsen of Denmark to cater for the rigorous climate of his region, where, as in northern Europe generally, Roses of great hardiness were required. 'Ellen Poulsen' was the first Hybrid Polyantha. The characteristics of all these Roses are hardiness, cluster flowering, and vigorous healthy growth.

A Mistaken Belief

This is a brief sketch of how the principal classes of our modern Roses came into being. Before we pass on to consider how to grow them to the best advantage, I should like to contradict a fallacy which some people persist in repeating, that "old Roses are best." This is quite a delusion. Although most of them flower only in

summer, perhaps some of the early Hybrid Gallicas and similar Roses are worth growing if you can spare the room for them; they will do well because they are not far removed from their original species and still retain their vigour. The fact is, however, that all those Roses with complex parentage like the old Hybrid Perpetuals, Teas, and early Hybrid Teas have deteriorated at the present day and will eventually die out, if they have not already done so. For various reasons associated with the vegetative propagation, which it would take too long to go into here, all varieties tend to deteriorate in vigour and quality after a certain number of years. It may be said that about fifty years is the average maximum life of any Hybrid variety. There are very few Hybrid Roses more than fifty years old from their introduction which are worth growing to-day. New varieties must therefore be continually sought for to replace the old ones. It may be taken for granted that any new variety which receives an award from the National Rose Society is also a good and an improved variety, for they are all examined and judged with extreme care both on the show bench and when growing in the trial ground.

New varieties are necessarily more expensive to purchase because the raisers and introducers have spent at least five years on them before they are even put up for an award, and the raisers must receive a due return for their skill and labour. I do not say that the newest varieties must necessarily be bought—leave them for four or five years if you wish, when they will be obtainable at normal prices—but I do say that if for any reason you purchase a Rose that has been in commerce for forty years or more you are extremely likely to be disappointed with it. It is always worth while keeping the varieties in your Rose-garden up to date.

CHAPTER II

PLANNING AND PREPARING A ROSE-GARDEN

IF you are thinking about planning a Rose-garden or making or remaking Rose-beds, the best time to do the work is in late summer, so that the soil has time to settle down and consolidate before any planting is done. I do not propose to suggest any definite designs or plans, because conditions and sites are so variable that plan and site would rarely suit one another. General principles may be helpful, however, and my own ideal is to try and make a picture, as well as a garden of Roses. The Rose must be subsidiary to the garden, not the garden subsidiary to the Rose, and it must take its proper place in the general picture, otherwise half the joy of the garden will be lost.

Composing a Picture

The first consideration in composing the picture should be, as in painting, some central object around which to build up your composition, and it should be something higher than the general level. A large decorative flower-pot containing a Japanese maple serves this purpose in my own garden now, and in other gardens I have made I have placed a statuette on a pedestal or a large raised bird-bath. A well-head or a sundial may serve, or perhaps an arbour or archway covered with climbing Roses, with paths leading to it from four directions. In any case it must be something conspicuous around which the garden can be planned.

Around this central object may be placed a number of beds, each of which should contain one variety only. The varieties to be selected we will talk about later. In planning the beds, there should be 18 in. between the plants and 12 in. from a plant to the edge of each bed, thus a bed 5 ft wide will take three rows, and a length of 8 ft will enable it to take fifteen plants in all. A width of 6 ft 6 in., to take four rows, should be the maximum; this enables you to get at every plant comfortably without having to stand with both feet and your full weight on the soil. The soil should never be trodden on more than necessary when tending the plants.

The general effect of beds of one variety is infinitely superior to that of beds of mixed Roses, for the display of colour is large enough to tell effectively. The effect of beds of mixed colours is merely confusing, in addition to which the plants are all heights and sizes.

The desired number of beds having been arranged in the centre, the picture is completed by putting a frame round it. This may be a continuous narrower bed surrounding the whole garden except at its entrance and furnished with vigorous ever-blooming Hybrid Polyanthas. At the back of this narrower bed erect posts about 5 ft high with wires strained between them, and on the wire train climbing Roses, tying shoots full length horizontally along the wires. A hedge around the garden completes the frame and isolates it from its surroundings, whether they be vegetables, herbaceous borders, or other people's gardens. The Rose is the Queen of Flowers and should have a place to herself with a distinct boundary between her domain and the abode of commoner plants. The hedge is more often than not made up with evergreens—*Ionicera nitida*, *lawsoniana*, or even privet—but how much more charming is a hedge of climbing Roses, which, trained



FIG. 4. A VASE OF 'LADY SYLVIA,' MEDIUM PINK WITH SHADES OF APRICOT SALMON

along wires, will make in a few years a dense and impenetrable hedge of perpetual flowering roses.

At each corner of the garden a feature might be made of some free-growing shrub Roses, such as the Hybrid Musks or Rose species, suitable varieties of which will be referred to later. Both an entrance to the garden from the house and an exit through to the rest of the garden beyond can be imposing and distinctive with archways covered with some brightly coloured climber, such as 'Chaplin's Pink Climber' at one end of the garden and 'Paul's Scarlet Climber' at the other. Two plants of the same variety should be planted, one at either side of the arch, so that the long canes will meet and cross each other overhead.

Preparing the Beds

It must be remembered that Roses are not just annuals but are meant to grow in the same place for a long time; once established they should not be disturbed. When planted and cultivated properly a Rose will delight the sight for many years. I have seen beds twenty-five years old still going as strong as ever. Therefore thorough care in preparation is worth while, the method of preparation varying according to the nature of the soil.

How often do we hear that curious remark, "Roses like clay!" This is one of those irritating fallacies that I hope to explode in this volume. Roses do *not* like clay: oak-trees may grow well in clay but Roses will not. Perhaps some hard-struggling wild briar might live in clay, but it would barely exist, it could not flourish in such material. Clay of itself is quite unfertile. Even heavy loam on a clay subsoil is not good for Roses and will require hard work to render it suitable.

No Rose roots will grow unless there is free circulation

of air and moisture. Stagnant water is certain death to Roses, so *drainage* is the first thing to attend to. Rose roots breathe: they require oxygen to support life just as we do, and they expire carbon dioxide just as we do. If Rose roots are encased in solid clay they will be smothered, unable to breathe, and will die of suffocation. If they are immersed in stagnant water they will be drowned, just as we should be. This explains the necessity of free drainage, for the moving water in the soil brings in oxygen and takes the carbon dioxide away.

In the old Rose-books written by the great amateurs of the past, Dean Hole, Foster-Melliar, and others, it was always recommended to dig deeply and to place at the bottom of the trench a thick layer of farmyard manure. Labour was cheap in those days and there was no particular difficulty in getting the beds dug 3 or 4 ft deep. Manure also was cheap and plentiful, for there were plenty of horses in those days, but nowadays it would be sheer waste to bury the manure in this way. The only purpose it can serve down at the bottom of the trench is by assisting drainage. If the drainage is free most of the manurial value will have been washed away by the time the roots get down to it, and after two or three years all that is left will be the vegetable humus. Besides it is completely inconsistent to bury manure deep down, for manure, i.e. food, must be regularly and continuously supplied. One cannot give an enormous feed one year and starve the plants for the rest of their lives, and it would be nonsensical to suggest taking up all the plants every two years or so, replacing the manure down below, and replanting.

The wildings in the field do not get manure placed below their roots, for their food comes from above, from the rotting of decaying vegetation and humus on the

surface of the ground. The deep burying of manure possesses a definite drawback in that it encourages the formation of tap-roots, which grow deeper and deeper in the bed so that it is impossible for them to take advantage of the fresh quantities of food with which we can supply them on the surface. Roses do not require a very deep root-run: 10 in. of well-prepared soil is ample, *provided that* there is another 12 in. of well-drained subsoil beneath. To achieve this, what is known as bastard-trenching of the bed should be carried out.

The length of the bed is marked out with sticks at about 3 ft intervals. The first yard is dug right out about 10–12 in. deep, thrown into a barrow, and wheeled to the other end of the bed, where it is deposited on the grass. The second spit is then well broken up with the fork; if it is heavy land or clay considerable quantities of hydrated lime should be mixed into it—this helps to break it up and render it porous for drainage. Then the top spit on the second stretch is dug and thrown across on top of the second spit of the first stretch. The turf should be well chopped up and mixed into the new stretch of top spit with material from the compost heap, old rotted vegetable refuse of any kind, old hay and straw, and about two or three double handfuls of bone-meal to the square yard. The second or bottom spit of the second stretch is then broken up as before, and the process is repeated down the bed. The heap that has been deposited on the grass at the other end is then shovelled in to form the top spit of the last stretch.

Dug in this manner it will be seen that the original top soil is always returned to the top of the bed. The top soil should never be buried, for it is the most fertile and the best supplied with natural humus. It is not necessary to dig manure into new beds; newly planted Roses do

“*Rose-sick*” *Beds*

At this point I must give a very serious warning. New plants should *never* be put in old-established Rose-beds—if they are they will almost certainly die and in any case they will never thrive. Rose-beds that have been growing Roses for eight years or more are “Rose-sick.” The old plants may go on doing well because their roots are well established, spread out, and may extend some distance away, but if there are a number of gaps in old beds and replacements are desired it is far better to take up the old plants, discard those that are not worth replanting, trim up the good ones and replant them with the additions in another part of the garden, and rest the soil of the old bed for a number of years by planting vegetables or other flowers.

The process of restoring the soil fertility for Roses on any plot may be hastened by preparing it as a seed-bed and sowing mustard-seed thickly in early spring. As soon as the crop is mature, dig it in and repeat the process again the same year, chopping it up and digging it in. It may even be possible to grow a third crop of green manure in the form of mustard or rape the same year, which would be all to the good. Two years of treatment such as this would fit the soil for growing Roses again perfectly, and even one year of this green manuring would considerably revitalize it and would probably be sufficient.

If this course is impossible and there is no other site available it will be necessary to take out the soil 18 in. square and 12 in. deep for each of the new plants, and to replace it with fresh soil. It would, however, be infinitely better to take out the whole of the bed 12 in. deep and wheel it away to exchange it with soil from another part of the

garden that has never grown Roses, liming it and enriching it with compost and manure as already described.

Finally, since there is nothing that sets off the Rosebeds better than a fresh green grass lawn, let your pathways be of grass. Besides, the grass mowings are an invaluable material for mulching the beds in hot weather. All the grass mowings should go straight on to the Rosebeds.

CHAPTER III

A SELECTION OF MODERN HYBRID TEA ROSES FOR THE GARDEN

THERE is a mistaken idea amongst many amateur gardeners that the quality of a plant is directly related to the price charged for it. They think that if they pay 10s. 6d. for a plant it must be better than one for which only 4s. is asked. Nothing could be further from the truth. Indeed, if 10s. 6d. is paid the plant may possibly be inferior in quality to a 4s. plant. The reason for the higher price is just scarcity value. A new variety when first put on the market is priced 10s. 6d. or more because there are very few of them, and also because the raiser has to be recompensed for the many years of work and skill that he has spent in producing that Rose. After the first year the price drops, since there are sufficient plants available to satisfy the demand for the novelty.

On the other hand, plants that are offered at *less* than the normal or standard rate are almost certainly not worth having. They will probably be "seconds," small plants that have not grown up to the average, or lots jobbed off to clear the ground for the next crop. These are often bought up wholesale by the stores and sold at a quarter of the proper price. They may have been lying about on the warehouse floor, and I have often seen bundles of them on the pavement in the street, dried up and shrivelled. They are not worth the trouble of planting. Always buy your plants from the people who actually grow them. If possible, see and select your plants growing in the nursery. There are a number of specialist

Rose-growing firms, members of the National Rose Society, who will give you a square deal and full satisfaction with good sound plants, and will charge a fair and proper price for their services.

In the following selection of varieties there are very few which are priced at more than the standard rate, because several years must always pass before it can be said of any new Rose that it will take a permanent place in the garden. All those selected are good healthy growers and I have grown them all to my own satisfaction. If they do not thrive, the blame for their failure must be looked for elsewhere than in the variety. A description of these Roses will probably be found in any nurseryman's catalogue but it will always mention their good qualities and say nothing of their faults!

White Roses

'McGREDY'S IVORY' (1929) is a large Rose, off-white or ivory in colour with long petals, and very shapely. It has long, stiff, erect stems and is free in flowering. In wet weather the blooms are inclined to "ball," for the texture of the petals is soft and under adverse conditions this prevents them from opening properly. It is best to give some protection against the rigours of a hard winter.

Pink Roses

'OPHELIA' (1912), pale or blush-pink, has now been in commerce a long time but still retains its popularity as well as ever. It is of medium size, has a good shape, is well scented, and is on long stems particularly suitable for cutting. Very similar is 'MADAME BUTTERFLY' (1918) which, however, is a little deeper in colour and with apricot shadings. Of the same type is 'POLLY' (1928), which has a possible advantage in having many more

for cutting are required it is better to disbud to a side bud, taking out the centre one: it will then come to a better shape, but somewhat smaller.

‘EDOUARD RENARD’ (1934) is quite a different type, its tall vigorous-growing plants giving a large number of medium-size deep-pink flowers with orange shading. A bed of this is a mass of colour when in full flower. It is easy to grow and is trouble-free. Another large flower is ‘MCGREDY’S PINK’ (1936), the broad, deep petals of which are a soft pink with shades of cream and saffron and heavily veined with a deeper pink. The plants are not tall but rather sturdy and spreading.

‘MRS. HENRY BOWLES’ (1921) is now of the older generation but is still one of the most reliable. It is a strong grower and free in its flowering, the flower being a deep rose-pink and of good shape and firm substance. I have observed that the best blooms are usually on the biggest plants and it is desirable to prune lightly and build up strong plants before cutting many blooms—cutting blooms of any variety for house decoration or other purposes should always be restrained until the plants are well established and able to stand the shock. This Rose is rather inclined to mildew, which should be watched for in its early stages and treated in time. It has very little scent.

A Rose of quite a different character is ‘VIOLINISTA COSTA’ (1936). This Rose has suffered severely in reputation by bearing such a name; there is no doubt whatever that a Rose with a charming name starts off with an advantage. In spite of this handicap, however, the ‘Violinista’ is coming to the fore on account of its sterling qualities. It is one of the most free- and continuous-flowering Roses that I know—in fact throughout the whole summer the bed is never out of bloom. The



FIG. 7. A BED OF 'VIOLINISTA COSTA,' ORANGE-PINK

individual blooms are rather shapeless and the growth somewhat short, but the effect in the mass is a joyful sight. The colour is orange-pink and there is plenty of scent.

'LAL' (1933) is much more demure and is strictly orderly in its regular shape. It is a bicolour pink with deeper tones on the inside of the petals—a good Rose, fairly full-petalled and large.

'HECTOR DEANE' (1938) has a medium-size flower, but the plants will grow into quite big bushes if lightly pruned, and can then be spaced 2 ft 6 in. apart. It is of the brightest cerise-pink and one of the most strongly

being fuller, more solid, and of better shape in the bloom and of a rich, dark, velvety, scarlet crimson with maroon shadings. At times it is not a strong grower and it has to be well cultivated and manured to get the best out of it. It has the real damask perfume. The National Rose Society annually takes a census among a number of expert growers as to which they consider the best Roses. In 1947 this Rose came top in every class whether for exhibition blooms, garden decoration, cut flowers, standards, or fragrance. 'DR. F. G. CHANDLER' (1938) is another well-shaped, free-flowering, deepest crimson Rose. I think it gives a greater number of flowers per plant than any other red, excepting 'Etoile de Hollande.' This too has that rich satisfying perfume of the damask.

'ENA HARKNESS' (1946) is the best scarlet so far introduced. It is extremely hardy, fully scented, and a tall, strong grower with rich foliage—an easy, no-trouble Rose for all gardens.

Yellow Roses

Of the yellows I think 'McGREDY'S YELLOW' (1933) is one of the best. It is large in size and of perfect shape, with tall, free-flowering plants. Some yellows are not very hardy; remember that they are descended not many generations back from the half-hardy Persian Yellow species. In the winter of 1947 all my 'McGredy's Yellows' were cut down to ground-level by the frost, and I thought that all were dead, but when the warm spring came, thirty out of forty plants shot out vigorously from dormant eyes below the ground-level and they gave more wonderful blooms than ever before.

In spite of its awful name 'GEHEIMRAT DUISBERG' (1933) is a deep lemon-yellow that can be confidently recommended. It has smaller flowers than the last but

many more of them, and they are very shapely. A pale lemon shade is represented by 'SIR HENRY SEGRAVE' (1932), an outstandingly good pale yellow in every respect, but continuous wet weather sometimes spoils the blooms.

'PHYLLIS GOLD' is of rich deep yellow and is the largest of its colour. At the Exhibitions of the National Rose Society it has a number of times carried off the medal for the best bloom in the show.

'PEACE' (1947) is a self-toned pale yellow with a remarkable tinting of deep pink on the edges of the petals. This Rose was distributed in 1948. It is a unique and wonderful Rose and must be mentioned: it has already been "out" in America since 1945 and has created quite a sensation there. This is a very large full Rose, which I have seen growing in the nursery gardens. As yet, I have been unable to find any faults with it.

Flame-coloured Roses

Of the flame colourings, mixed yellow to orange and scarlet, and tints of copper, which are so popular nowadays, there are some which simply must be planted. One of the best of these is 'SIGNORA' (1936); the original name was 'Signora Piero Puricelli' but our National Rose Society ordained that this really was too long, and it was shortened accordingly. This Rose originated in Italy and its bright colouring is suggestive of that colourful country. 'MCGREDY'S SUNSET' (1937) is another of the flame colours, scarlet and yellow, vigorous and free-flowering.

'MRS. SAM MCGREDY' (1929) is a unique Rose both in colouring and in shape—a deep salmon orange, with wavy or frilled edges to the petals. It is a difficult Rose to grow well and is not very hardy. I had it doing

extremely well on the stiff, heavy loam of Sussex, but so far it is not very successful on my present lighter soil.

A beautifully shaped Rose on long stems suitable for cutting is 'PRESIDENT HERBERT HOOVER' (1930), a very tall grower, which if lightly pruned will make a very big plant. It is easy to grow and will do well in any garden. 'TALISMAN' (1929) is a similar Rose but is a smaller plant and has rather more orange and scarlet in its make-up. 'SHOT SILK' (1924) is a Rose of quieter colouring, soft carmine and cream. It is a wonderfully sturdy grower which I have never seen troubled by disease of any kind. If pruned lightly it will grow into a large bush which is unsurpassed for continuity of flowering. Lastly in this group I recommend 'CHARLES GREGORY' (1947), quite a new Rose but one which you must have if you are to keep up to date with improved varieties. It is of medium size and is good for bedding and cutting.

Buff or Maize-coloured Roses

Among the buff or maize-coloured Roses there are three which are suitable for any collection and will always give satisfaction. 'GOLDEN MELODY' (1939), is tall-growing, medium size, and perfect shape. 'GOLDEN DAWN' is a big Rose on shorter-stemmed plants but is one of the best for bedding on account of the rich foliage. These two, while less assertive and of more subdued colouring, are nevertheless amongst the most reliable and easy to grow. 'BARBARA RICHARDS' (1930) is a light maize-yellow with a large well-shaped bloom. It is not a tall grower, however, but is bushy and makes a good bedder.

There are, of course, many more good Roses, but the foregoing are quite sufficient for a fine collection, until such time as sufficient confidence and knowledge have been acquired to select others.

CHAPTER IV

THE POLYANTHA ROSES

IN my suggestions for planting a Rose-garden I said that the principal beds would be well set off by a "frame" of a narrower bed surrounding the Rose-garden and furnished with Polyanthas or Hybrid Polyanthas. This class of Rose is of an easy-to-grow character frequently taken advantage of by the lazy or careless gardener. It is a pity for them to be neglected, as they sometimes are, for they require so little attention and they will repay it with a wealth of colourful bloom.

A special method of pruning is desirable, which will be dealt with later. Apart from this they need no special attention and should be cultivated the same as other Roses, the spent flowers being cut off when necessary. The rigours of the winter of 1947 reminded the Rose world of the comparative hardiness of this type of Rose. In my garden I lost a large number of most of my other garden Roses, but amongst the Polyanthas there was not a single casualty. The reason for this comparative hardiness is easy to understand, for they are descended from the hardy species *R. multiflora* (*polyantha*) and the equally hardy *R. chinensis*. The home of the one is in the almost Arctic winter cold of Japan and the other comes from the mountains of China, which are snow-covered in winter. They combine the everblooming habit of *R. chinensis* with the small-flowered but cluster habit of *R. multiflora* (*polyantha*). On the other hand, all our modern garden Roses having the least trace of yellow or orange, or even scarlet, are descended partly from the half-hardy

Persian Rose. Only the pure crimsons are free from this weakness, deriving their hardiness from *R. chinensis*.

The first notable Dwarf Polyantha Rose appeared in 1909, the 'ORLEANS ROSE,' raised by Levavasseur. From this variety there have arisen a number of sports, such as the crimson 'EDITH CAVELL' (1917), the pale coral 'CORAL CLUSTER' (1920), and many others, including some with entirely different habits of growth, such as the dwarf brilliant orange 'GLOIRE DU MIDI'. Some other worthwhile varieties in this class are 'CAMEO,' salmon-pink, 'EVELYN THORNTON,' shell-pink, 'FIREGLOW,' small flowers of bright orange vermillion, 'IDEAL' and 'SUPERBA,' dark crimsons, and 'GLORIA MUNDI,' orange. These will all make good 2 ft plants for borders or edging to pathways, and can be planted for this purpose 12 in. apart. A somewhat dwarfer plant is 'EBLOUISSANT,' which has larger flowers of a wonderful deep scarlet. I am also much intrigued by 'BABY FAURAX,' a miniature plant with tiny crimson-violet-blue flowers. There are several companions to this, which can be found in pink, crimson, and yellow, such as 'WHEATCROFT'S BABY CRIMSON' and 'JOSEPHINE WHEATCROFT.' These are really miniature China Roses and make beautiful little plants of 9-12 in. in height. The pink 'ROULETTII' is one of the smallest.

A later development from the Dwarf Polyantha is the Hybrid Polyantha, arrived at in the main by crossing the former with Hybrid Teas. This has produced a type of Rose which every year is being given more attention. The first important variety to arrive was 'ELLEN POULSEN' in 1912, after which there was a long gap until in 1924 'ELSE POULSEN' appeared, followed by 'KIRSTEN POULSEN' in 1925, the last two mentioned being from 'Orleans Rose' crossed by 'H.T. Red Star.' Since then some of the

best Roses for planting in mixed borders and for making low hedges have been introduced. Some when well cultivated will make dense hedges 4-5 ft high. They are all characterized by large clusters of single or semi-double flowers and hardiness of constitution—these are indeed the easiest of Roses to grow and give the greatest return for the least amount of labour.

‘KIRSTEN POULSEN’ is the tallest of all, but ‘BETTY PRIOR’ is a good companion. Another tall grower is ‘DAINTY MAID,’ a shell-pink bicolour, and it will make a fine specimen bush if required. Another which I have always liked is ‘MEVROUW VAN STRATEN VAN NES,’ in this country abbreviated to ‘Van Nes,’ but in America called ‘Permanent Wave,’ which well describes its flowers with frilled edges like a picotee. Poulsen of Denmark has specialized in these Roses and has bred many of the best, including ‘KAREN POULSEN’ of brightest scarlet, crimson ‘ANNE POULSEN,’ ‘POULSEN’S COPPER,’ ‘POULSEN’S YELLOW,’ and, the most recent, ‘POULSEN’S PINK’ and ‘POULSEN’S BEDDER.’ The best yellow in this class to date, however, is ‘WHEATCROFT’S GOLDEN POLYANTHA.’

Another of distinct colour is the cerise-pink ‘CHEERIO.’ It makes a good bed and seems to be in full bloom every time I see it. A fully double-petalled pale pink which can be recommended is ‘ROSENELEFE’ and a good pale pink tinged with yellow shadings is ‘FORTSCHRITT.’ An outstanding Rose, one of the best so far seen in this class, is ‘FRENSHAM’; this was raised by an amateur, Mr. A. Norman, and introduced in 1946. It was awarded the Gold Medal of the National Rose Society, a rare, indeed unique, honour for a Hybrid Polyantha. Of a deep scarlet in colour, it has very pretty, perfectly-shaped buds, opening into the loose formation characteristic of its class. The plants are very vigorous and if lightly



FIG. 9. 'FRENSHAM' (HYBRID POLYANTHA), DEEP SCARLET CRIMSON

pruned will quickly grow 3 ft or more in height and make a dense prickly hedge. On the other hand, hard pruning will keep it dwarf if you prefer it so. It is continuously in flower with enormous sprays, new shoots with their buds growing on as soon as the earlier flowers begin to fade.

The original parents of the Polyantha garden Roses were scentless and they have transmitted this trait to nearly all their descendants. The powerful scent of 'Crimson Glory,' one of the parents of 'Frensham,' has failed to be transmitted to its offspring, but this characteristic will undoubtedly come in time. 'Anne Poulsen' has a slight but definite scent. I wonder whether a crossing-back to a scented species such as *R. pisocarpa* might perhaps bring about such a desirable result. Pisocarpa will scent a garden for many yards around, and if this scent could be put into a continuous blooming Polyantha you would have a wonder Rose.

One of the applications of the Hybrid Polyanthas has yet to be fully developed in this country, namely, the mass decoration of open spaces and public parks, for which no plant could be more suitable and, considering its everblooming qualities, few could equal. In Germany before the war it was being widely used for this purpose, as few other Roses would stand the winter cold of most of the German provinces. Indeed, the main preoccupation of Poulsen, who is a Dane, was the problem of providing Roses for his neighbours of northern and eastern Europe.

CHAPTER V

CLIMBERS AND RAMBLERS

Climbing Roses for Walls

ONE of the earliest mistakes I made when growing Roses in my first garden was in planting 'Dorothy Perkins' against the wall of my new house. I suppose learning by experience is the best way, but it is also the hard way, the long way, and can be expensive. Most of what I know about Roses has been learnt this hard and long way, and I sometimes wonder how many Roses I have killed by bad treatment!

The Wichuraiana Ramblers must NOT be planted against a wall. If they are they will get mildew and suffer from every possible disease and pest. Having settled that, let us consider what we *can* plant in such places. One of the best varieties for the purpose is, outstandingly, 'MERMAID,' a very beautiful single- or five-petalled Rose of primrose yellow with golden anthers and about $4\frac{1}{2}$ in. across. The foliage, brightly polished and coloured from amber to deep green as it ages, is not the least of its beauties. The prickles are fierce, however, and the young shoots extremely brittle—if they are bent in the opposite direction to that in which they wish to go they will almost certainly snap off, so great care must be taken when training them in.

The best method of training climbers to a wall is to drive in eyeletted spikes at about 15-in. intervals up the wall and to strain on these ex-Government stores cotton-covered telephone wire, which should be at least 2 in. away from the wall.

Most of the climbing sports of Hybrid Teas are suitable for the purpose, such as 'CLIMBING ETOILE DE HOLLANDE.' This is of rampant growth, which in time will cover a 20 ft space and give a glorious display of deep scarlet bloom, more strongly scented than almost any other. Like other climbing sports it will give a few flowers in the autumn, but not nearly as many as in early summer. 'CLIMBING MADAME BUTTERFLY' is a warm pink, and under favourable circumstances gives nearly as good a show as the 'Etoile.' 'CLIMBING LADY HILLINGDON' is one of the best; it is very free and will easily cover the side of a house with its foliage and, in its season, with its orange-yellow flowers. It does not flower a second time, nor does 'CLIMBING MADAME EDOUARD HERRIOT,' which has a brilliant colour and is one of the flame-toned varieties; a space about 8 ft wide by 8 ft high is as much as should be expected from this. 'CLIMBING MADAME CAROLINE TESTOUT,' a cold pink, not only gives about the same amount of growth but also an extraordinary profusion of bloom in June and a few flowers in the autumn. 'MADAME ALFRED CARRIÈRE,' an old Noisette Rose is another which in time will grow up to the roof and spread 15 ft. It is a blush-coloured Rose with agreeable scent, a quality shared by 'ZÉPHIRINE DROUHIN,' a Bourbon Rose; the latter, however, will not cover more than about 6 ft by 12 ft high. Both of these are almost perpetual-flowering. Another variety which gives two full periods of bloom is 'LADY WATERLOW,' a pale pink, which will grow up about 18 ft and 6 ft wide, but is perhaps better trained more horizontally. 'ALLEN CHANDLER,' a large semi-single crimson, and 'LEMON PILLAR,' a pale yellow are of more limited growth, but 'MADAME GRÉGOIRE STAECHELIN,' pink, is again one of the rampant growers which will cover

a large space. These three bloom only once in the season.

If these climbers are required to do well very careful preparation must be given to the soil. See that there is 3 ft square and 20 in. deep of good clean soil, and in the top spit mix plenty of material from the compost heap, chopped-up turf, old decayed hay and straw, and a very liberal sprinkling of bone-meal. No other manure should be used during the first year, but a really ample top dressing of both animal and chemical manures should be given after the pruning in April every year subsequently. When the plants are well established, but not before, give liquid manure as well; the results will be worth it. Remember that the ground near a wall may not get its full share of rain, so that an occasional good watering in summer is necessary.

At the time of planting, cut away any weak growths and tip the main shoots a few inches—they will not require any other pruning the first year. Plant firmly and tie the shoots separately, but rather upright; this helps to get the plants established. Then the second year take them down and retie them as nearly horizontally as possible, with some up to fan-shape. Henceforth never tie a shoot, or let it grow, straight up, otherwise the lower eyes will not easily break into growth nor will the plant gradually build up to fill the allotted space, but it will become leggy, with foliage and flowers only at the top. Prune as little as possible and only to keep it within bounds. When it becomes overcrowded cut out as much of the old wood as possible, leaving the virile young wood to take its place.

During hot, dry, summer weather these wall climbers are liable to be attacked by the red spider mite, and should be sprayed if necessary with HETP (Mortopal) or DDT—Pyrethex R.

TWELVE SELECTED VARIETIES FOR WALLS

'Allen Chandler'	'Lady Waterlow'
'Climbing Etoile de Hollande'	'Lemon Pillar'
'Climbing Lady Hillingdon'	'Madame Alfred Carrière'
'Climbing Madame Butterfly'	'Madame Grégoire Staechelin'
'Climbing Madame Caroline Testout'	'Mermaid'
'Climbing Madame Edouard Herriot'	'Zéphirine Drouhin'

The Wichuraiana Ramblers and Climbers

A few Ramblers in the garden make a wonderful display of bloom in their season, but once a year they take a considerable time to prune and put in order. If they are neglected they give a lot of trouble when the time comes for them to be got back into good condition again.

In my garden I have an old hazel-tree about 10 ft away from the trunk of an old apple-tree, and I have tied a pole from one to the other. Near the base of these two supports I have on the one side planted 'Purity,' a Hybrid Wichuraiana Climber and on the other 'Sanders' White,' a Wichuraiana Rambler which is the best of the white ramblers. Towards the end of June and in July these give a mass of bloom cascading right down to the ground. For two years I was busy with other matters at the proper time for pruning. The third year I looked at them several times, but shirked the job of tackling them. The next year it simply had to be done, and it took me two whole days to get them into order; my wrists and arms were scratched to pieces—and doesn't my nose bleed when a sharp thorn gets a firm hold! It pays to see to them every autumn. 'PURITY' must be pruned as little as possible, since it does not throw up new growth from the base so readily, but all the decadent wood has to be cut out and laterals must be reduced to three or



FIG. 10. 'PURITY' (WICHURAIANA CLIMBER) AT KEW GARDENS

four eyes. A few of the main stems are best cut hard back from time to time to induce them to break fresh growth from low down. 'SANDERS' WHITE' has quite a different type of growth, with very long slender canes, and nearly all the old canes need cutting right out leaving only a few with good long extending laterals. It always produces plenty of new growth from the base. These two are characteristic of the two classes of *Wichuraianas*, either of which is good for isolated pillars, arches, or pergolas,

and for training along ropes or open fences to form boundary hedges.

Among the best of the *Wichuraiana* climbers are also 'CHAPLIN'S PINK,' 'PAUL'S SCARLET,' 'ALBERTINE,' scented salmon-pink, 'EASLEA'S GOLDEN CLIMBER,' 'THE NEW DAWN,' pink and perpetual-flowering, 'THELMA,' pink, and 'EMILY GREY,' cream. The Climbing Hybrid Teas already given as suitable for walls are also good in the open for our present purpose. Of the *Wichuraiana* Ramblers, the universal 'DOROTHY PERKINS' is still one of the best; others are 'VEILCHEN BLAU,' pale violet, if you like the colour (there is one at Sissinghurst Castle over 30 ft high, supported by a tree—a wonderful sight), 'CRIMSON CONQUEST,' scarlet, 'MINNEHAHA' and 'EXCELSA,' crimson, 'DR. VAN FLEET' and 'LADY GAY,' pinks, 'AMERICAN PILLAR,' deep pink with a white eye, and 'ALBERIC BARBIER,' cream.

Some thought must be given to the erecting of the poles for supports, since if they are driven directly into the ground they will inevitably rot just below ground-level; then just as the plants are nicely established the whole thing will collapse. The best plan is to sink 4-in. drain-pipes into the ground and to cement the poles into these. Another successful method which I once adopted, was to drive into the ground 3-ft lengths of 1½-in. iron pipe, leaving about 12 in. above the surface. To these I firmly wired three long canes, wiring them together again at the top. These lasted for many years, and I believe are still standing.

The *Wichuraiana* Ramblers are also the most suitable for weeping standards for the others with stiff stems are not so decorative. An established "weeper" should have most of the old wood cut out every year, the long pliable young canes being allowed to drape right down to the

ground—or umbrella-shaped wire frames can be obtained to train them over. The Ramblers are budded on to tall *canina* stems and are most effective at about 6 ft high. They should be quite isolated from neighbouring tall specimens and make good centre-pieces in broad beds or look well quite by themselves on lawns.

CHAPTER VI

THE ROSE AS A FLOWERING SHRUB

So often the shrubbery is the name for a dismal collection of laurels, tired rhododendrons, and some other more or less flowering bushes placed as a boundary to another property or to the public highway. It need not be so dull, and by choosing some of the free-growing Roses and species it can be made a borderland which is interesting and colourful from May to December.

The foliage alone can be a most beautiful background to other garden plantings. *R. WILLMOTTIAE* in the distance is like a cloud of blue-grey smoke, its leaflets being tiny but so multitudinous that they mass together and produce an ethereal effect. The hews fall and do not last into the autumn, but in early summer the whole bush is alight with myriads of soft purple-pink flowers. It grows in a few years into a big bush 8 ft high by 6 ft through, a dense mass of prickly growth. I once got a marvellous picture by placing a bush of "AUSTRIAN COPPER" in front of it, which gave an amazing contrast of colours, but, alas, Black Spot attacked and the Austrian had to go on the bonfire to save its neighbours from the infection. In districts where Black Spot is not prevalent I can recommend this interesting combination.

In complete contrast to *Willmottiae* is *R. SERICEA PTERACANTHA*, whose native habitat is the Himalayas. This is a bold, arrogant giant which will grow to 14 ft or more; I have had new shoots sent up 10 ft from the base in one season. If you want a cattle-proof hedge here is one. The young shoots are extraordinarily decorative

when cut into 2-ft or 3-ft lengths and arranged in a vase. The leaves have numerous tiny leaflets and are bright green, but the huge, broad thorns are ruby red and transparent like red-currant jelly. After the first year the thorns harden and become as sharp as needles, and have cutting edges: I have had my coat torn by coming up against them accidentally. The wood is so hard that only a saw will touch it—knife or secateurs are useless on it. The flowers, which are white and very small, have four petals only, and the sealing-wax-like hews soon drop off. Grow it in the background for its foliage and decorative shoots.

A tall trio from China are *R. MOYESII*, *R. FARGESII*, and *R. MACROPHYLLA*, all of which grow to about 8 or 10 ft. The first is a dusky crimson, the others pink, and the flowers, which are about $2\frac{1}{2}$ in. across, have five petals. After the first blooming in June they give a second brilliant display with their brightly-coloured gourd-shaped hews which are about 3 in. long—these last on the bushes until well after Christmas. *Macrophylla* is not quite so hardy as the others and is better in a sheltered place. Another background bush is *RUBRIFOLIA*, which grows to about 6 or 7 ft, has reddish-grey foliage, pink flowers, and round brown hews in the autumn. The stems and foliage are most useful for cutting for vase decoration, to mix in with other cut flowers.

In the centre of a large round bed of *Polyantha* Roses I once had a big bush of *R. SCHWEGINZOWII*, which always attracted attention with its large single pink flowers in summer and bright scarlet gourd-shaped hews in the autumn. The autumn effect is just as brilliant as the summer display. These species Roses will cross-fertilize, so plants grown from seed will rarely come true to type but will show slight variations due to the influence of



FIG. 11. R. HUGONIS, THE GOLDEN ROSE OF CHINA

some near-by neighbour. In the natural state they usually grow in colonies of their own tribe and thus breed true, but in gardens and mixed plantations some interesting varieties may occur.

I do not know why *R. PENDULINA* is thus named, for it grows slender stems, straight as a die and 6 or 8 ft tall, but then I am not a botanist. It is one of the most thornless of all roses and has pretty pink flowers and narrow, pear-shaped hews.

R. PISOCARPA is one of my favourites. In June there is an immense crop of small, deep-pink flowers, which are intensely scented and perfume the garden for many feet around. The plant grows up to about 8 ft and about 4 or 5 ft through, with a dense thicket of slender stems having very few thorns. It flowers continuously throughout the summer months, and in the autumn until well into January the bush is alight with the thousands of bright scarlet hews.

R. MICROPHYLLA is a curiosity to show to your visitors. It is most unlike a Rose in the autumn, when it has green prickly hews like a horse chestnut. It grows about 4 or 5 ft high and has large single pink flowers, but not very many. A curious characteristic is the bark on the stems, which is always splitting and peeling as if it were dying.

Another interesting species which attracts almost as much attention as anything else in the garden is *R. VIRIDIFLORA*, the Green Rose, which is said to have come from Eastern North America, but is most probably some strange mutation from *R. chinensis*.

Another curiosity is *R. MIRIFICA*, the Gooseberry Rose, which at a casual glance looks like a small gooseberry-bush with its typically shaped leaves and prickles.

R. WATSONIANA must be included among the curiosities. It is a rather straggly bush of about 6 ft with tiny white



FIG. 12. SPECIES *R. WILSONI*

flowers on long, arching stems; the leaves, which are its distinctive feature, are long and very narrow, like those of the nitida bamboo, and are mottled all over as if they had mosaic disease. I have often "taken in" unsuspecting horticulturists with this.

R. OXYDON, one of the smaller species, well worth growing, is a small, densely-foliated bush about 4 ft high and perpetual-flowering, the pink flowers of the second crop growing above the scarlet hews of the previous blooming.

The earliest of all Roses to come into bloom is *R. SERICEA NIGRA* with its creamy-white, four-petalled flowers, which opens the season in the last week in April, but is soon followed by *R. SPINOSISSIMA ALTAICA*. This had its original home in the wastes of Northern Asia and that is the reason it comes so early into flower in our more temperate climate. It is one of the best of the species for the small garden, a flowering shrub of the highest recommendation, growing to a height of about 6 ft and in its season densely covered with beautiful cream-coloured flowers.

R. FEDTSCHENKOANA, named after the Russian traveller who brought it back to civilization, is a large bush with unique grey-green foliage and single white flowers about $1\frac{1}{2}$ in. across, blooming continuously throughout the summer months—a very decorative background shrub Rose.

R. RAPA and *SCHARNKEANA* are both foreground subjects growing to about 4 ft and have pretty pink flowers the whole summer through.

R. HUGONIS, the Golden Rose of China, is certainly one of those most worth while including in a collection of shrub Roses as it is one of the most densely flowering of all. The long arching stems are covered with flowers along their whole length. A hybrid of Hugonis is *CANTABRIGIENSIS* with equally beautiful flowers, but more upright and taller in growth.

R. RUGOSA SCABRATA and *R. RUGOSA ATROPURPUREA* both bear, continuously, large crops of very large, deep-purplish-pink flowers, and have hips as big as and of the colour of small tomatoes. These will also interest the housewife, for excellent Rose-syrup can be made from them and a well-established bush will provide several pounds. The foliage of all the *Rugosa* group is

unique in having curiously crinkled, leathery, bright-green leaves.

R. PRIMULA bears a wealth of primrose-coloured flowers and is one that must not be omitted. It is a low bush of about 4 ft with mahogany-coloured stems and thorns and tiny, fernlike foliage which is strongly scented of myrrh. On a warm, moist, summer evening it will scent the air for many feet around. I was once visited by a clerical friend on just such an evening. He was very much interested in this rose and asked me to propagate some plants for him to place in the churchyard. About a week later, however, I had a letter from him to say that he must release me from my promise, as he was afraid that the scent of these roses around the porch of the church might make some of his parishoners suspect him of leanings towards Roman Catholicism!

There are many more very beautiful wild Roses, but they take up a lot of space and I think I have skimmed the cream of them in the foregoing notes.

Hybrid Musks

The Hybrid Musks are another section of Rose shrubs which will give a grand mass display in June and July, and most are perpetual-flowering right through to the autumn. I have three in a group—‘PENELOPE,’ pale flesh-pink, and ‘FELICIA’ deep pink, both of which are shrubs of about 5 ft, and in front of them ‘ROBIN HOOD,’ light crimson, about 3 ft, which is probably the most free-flowering of all. Other good varieties are ‘VANITY,’ tall and deep pink, ‘PROSPERITY,’ white, and ‘NUR MAHAL,’ crimson, about 3 ft, which makes a beautiful subject for a low hedge.

CHAPTER VII

PLANTING

THE Rose-beds should be ready for planting in late October and the job should not be delayed. At this time of year the soil is still warm and in the right condition for planting, whereas a month later it will usually have been chilled and saturated by the late autumn rains. Roses planted at this time will get a quick hold upon the soil before winter sets in and will start away next spring with a much better chance of making good growth and becoming well established by the summer.

Upon receipt of the bundle from the nurseryman attend to it therefore as quickly as possible. Open the parcel (throw the straw on the compost heap) and examine the plants. The leaves will still be adhering and should be cut off near the stem with pruning scissors. Do not pull the leaves off as this might damage the leaf-bud or eye. Now cut out with the secateurs, or for preference with the knife, all sappy new growth. It will probably be reddish in colour and very soft; this has started into growth since August and will not be sufficiently ripened to withstand the winter frosts. Cut it right away at the base.

See if there is a snag of stock wood left on the plant—this will be that part of the stock which is above the place where the Rose proper grows out from it at an angle. The wood will be dead; cut it right away, and if the secateurs are used pare it off smoothly with a sharp pruning knife. It is quite probable that you will find in this snag one of the greenish grubs of a sawfly, which has

laid its egg in the pith of the shoot, and which slowly eats its way downwards. Next remove any weak or twiggy growth and there should then remain only the two or more main stems which for the time being should be left full length.

The roots should next be examined and the broken ends cut cleanly through with the knife, reducing them in length to about ten inches from the plant. Meanwhile, do not expose the plants longer than absolutely necessary; it is best to keep them in a pail of water for an hour or two until they are ready for planting. Should the branches be in the least shrivelled it means they have already been exposed far too long, but in this case they can be restored by being totally immersed in the water-tank for twenty-four hours.

What I call my "planting mixture" should now be prepared. This consists of damp, granulated peat into which is well mixed some raw bone-meal in the proportion of about a double-handful to a 3-gallon pailful of peat. Bring this with the plant to the bed, which, it is presumed, has already been marked out with canes so that the exact position of every plant is fixed.

The most useful tool for planting is that which is known as a small (6-in.), flat-tined border-fork. With this make a flat-bottomed hole about 18 in. round and only sufficiently deep for the crown or juncture of the plant with the roots to be about 1 in. below the level of the bed when the plant is held in the hole and the roots spread out horizontally. In order that this level can be clearly seen, do not throw out the soil all round the hole but only on two sides. Now throw on and around the roots two handfuls of the planting mixture, then some loose soil so that there are no air pockets, then some more planting mixture and some more soil until the hole is

half full. Treading it down thoroughly and firmly is the next process, and it will be found that if you have got the crown at the right level to start with it can be kept there by treading the margins of the soil in the hole first. Treading the soil near the crown will lower its level considerably. Complete the filling up of the hole with loose soil and leave it loose. At the end of the day a good watering to each plant will finish the job.

Standards are treated in exactly the same way and planted at the same depth. Do not attempt to level the heights of the standards by planting some deeper than others. The stakes for tying them to should be driven in at the same time as the planting, for if they are placed in position later the roots cannot be seen and the point of the stake is bound to damage some of them.

Isolated or dot-planting of standards on lawns is frequently seen. For this purpose a hole 3 ft square 18 in. deep should be prepared in a similar manner to that already described. In clay soil, however, it will be extremely difficult to prevent this becoming a water-hole or bath in which the roots of the Rose will soon be drowned, and it is essential for draining for a trench to be dug of the same depth as the bed, so that surplus water can drain away. Do not subsequently let the grass grow up to the stem but always keep a clear space of soil about 2 ft 6 in. in diameter.

In fair weather, when the soil is not wet and saturated, planting can be done at any time until April, but if planting in March or after the normal pruning season they may conveniently be pruned in the hand before planting. Should the bale arrive, however, when through frost or wet the soil is not in a workable condition, it should be unpacked and the plants trimmed as before described. They should then be laid in a shallow trench

and half covered with soil to await more suitable conditions. If there is a frost, just damp the bale, cover it with sacks, and leave it in the shed until the frost is over.

Towards the end of April, the new plants should be breaking strongly into growth, and if the season is exceptionally dry they will benefit from a good watering. All watering should be given if possible through a fine nozzle or sprinkler which is directed upwards a little: this aerates the water and enables it to absorb the maximum of oxygen to carry down to the roots.

In subsequent years, but not (repeat NOT) in the first year, April is the time for the application of manure. I always make a practice, however, of covering the soil round newly planted Roses with granulated peat to a depth of about 2 in. In a dry season this helps to conserve the moisture and in a hot season to keep the soil cooler also. At the end of May you must decide whether blooms are required for cutting for any purpose or whether they are to stay on the plants to decorate the garden. If required for cutting then about this time they must be disbudded by carefully breaking off the side buds leaving only the centre ones. At the end of June the blooms will be beginning to break, but on no account cut newly planted Roses with long stems, as they are not yet sufficiently established and it will give them a severe shock from which they will take a long time to recover. When they have finished flowering on the plant and the petals have fallen, just cut them back to the eyes highest up on the stems.

A wet July means weeds, but the peat will smother many of them and the others must be removed or destroyed by regular hoeing. I have tried every pattern of hoe which I have seen, but the "Sproughton" pattern is the best. It lies flat on the ground and, the hands

being lifted for a push-forward stroke and dropped for a pull-back stroke, works just beneath the surface of the soil (Fig. 13).

The second flush of bloom appears in August and the third in September. All stems that start from the base after the middle of August can be cut as long as you like—it is the first or June growths that you have to be careful with, for it is on these that you depend for the base of next year's growths. Fresh shoots from the base starting in September will not be likely to ripen in time

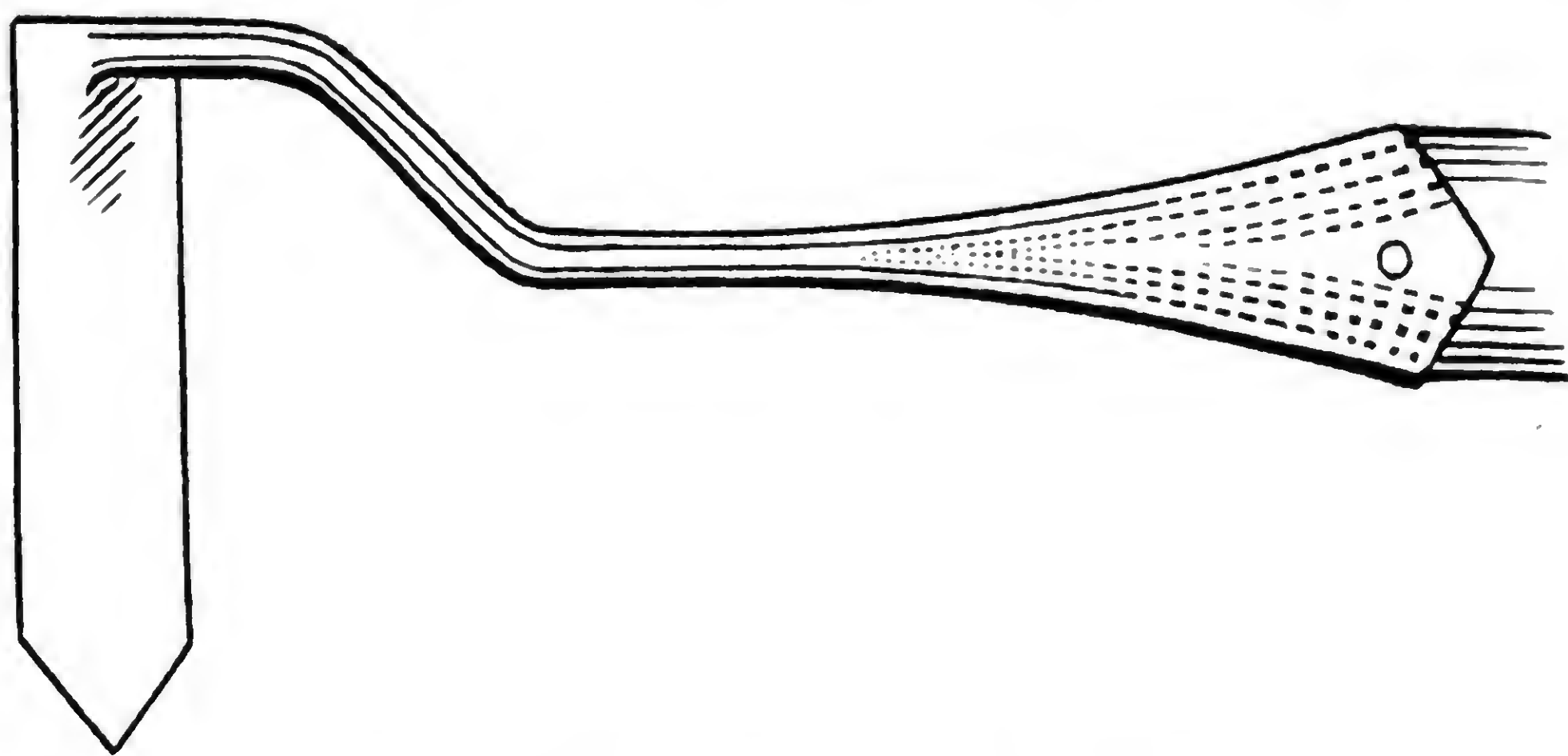


FIG. 13. THE "SPROUGHTON" HOE

to stand the winter and it is better to cut them back at once, sacrificing the possibility of blooms at Christmas, but conserving the strength of the plants. After September I do not cut off the blooms any more but just let them die on the plants, and let the heps form if they will. This enables the plants to rest and settle down for the winter instead of exciting them into fresh growth, as would be done by cutting back the stems.

Winter Protection

If you live in a district subject to severe winter frosts it may be desirable to protect the plants by drawing the soil up round the crowns to a height of 6 in. or so. This method has the additional advantage of making

shallow trenches along the rows, which will help drain away surplus water and so keep the crowns drier. Standards can be protected by drawing four or five wisps of straw in different directions over the crowns at the top of the briar stems, and tying the ends together below; if necessary this can be done after any severe frost has started. Climbers can likewise be protected by tying them round with old sacking. All this protecting material must be removed as soon as possible after the hard winter frosts are over.

CHAPTER VIII

PRUNING

WHY do we prune our Roses? To find the answer let us go out into the country-side and observe how the wild Roses grow. Admittedly there are different types or subspecies, some of which will grow up like climbers—I had one 30 ft high up an old oak-tree in Sussex—but the majority will be bushes about 6 or 8 ft tall. These consist of stems two or more years old with laterals or sublaterals upon which flowers are produced in June. After the flowering period one or more strong new growths will start from near or below ground-level and may grow 5 or 6 ft or more during the next few months. The following year these shoots will produce lateral shoots which will flower in their turn, but the old stems will become less vigorous and produce fewer flowering shoots with fewer flowers and fruits. The newer strong shoots from the base are starving them of sap. This process goes on continually until in course of time the old stems die or are broken off by accident or the wind and the younger growths take their place. This is the inevitable course of life.

In our gardens we prune to anticipate the course of Nature and to keep our Rose-bushes always full of young, vigorous, healthy wood; it is the young wood which will give you the beautiful flowers, not the old declining stems. Some varieties and types will grow on and become tall like semi-climbers, and though climbers are good in their proper place we do not want climbers in our beds nor do we want to have to carry small step-ladders round to

gather our flowers. So with such varieties we prune again to keep our bushes compact, well shaped, and full of foliage, which of itself should be a decoration in our rose-beds; if we allow the stems to become too tall they will be sparse of foliage and have leggy, bare, flowerless stems. Alternatively, if they are not tall-growing, the bushes will become choked with spindly, useless twigs and bear only a few, thin, characterless flowers.

Our aim must be, then, to promote and encourage strong, young growth and even, well-shaped bushes which "sit" nicely on the ground.

Preliminary Autumn Work

The first stage in the pruning of all bush and standard roses is in the autumn, in November, at which time it is well to go over our plants and cut clean out near the base all shoots which have started into growth since the end of August. They will not be ripe enough or hard enough to stand an average winter, and if they are left to be killed by the frost the dead stems invite attacks by disease, which may spread to other parts of the plant.

But before proceeding any further let us see if we have the proper tools. The essential pruning instrument is a strong, single-bladed knife,¹ curved at the end. It must be well honed and finished off to a keen edge with a No. 1 emery stick (these emery sticks can be obtained from most suppliers of fine tools). A grecian saw is also required. This is a short curved pruning-saw which narrows to a point and has the teeth in the opposite direction to those of an ordinary saw; it cuts by being pulled instead of being pushed and is necessary for stems

¹ A new "rose pruner" made to my specification by the Wilkinson Sword Co. has recently been produced. It gives a clean, smooth cut and is as good as a knife and easier to use.

too thick for the knife or secateurs. Occasionally shoots at the base of a plant are crowded together and if a stem has to be cut out it is extremely difficult to get at it without damaging the others. In such cases I have found extremely useful a sort of small fret-saw called a coping-saw, with which it is possible to get at the most awkwardly placed stems. The cut of these saws is very rough, however, and it is necessary to pare it off cleanly with the knife afterwards. Another essential tool is a good pair of secateurs, one with a sliding knife-action as it cuts is the best. A good pair of pliable gloves will be required. The only gloves I have found of any use in the Rose-garden are made of stout white cotton twill. They are not affected by the wet and are practically thorn-proof. Leather gloves are much too stiff and thick for it to be possible to work easily with them among the Roses. These are the essential requisites, but personally I cannot bend as easily as I used to and I have to have also a rubber kneeling-pad to get down to the level of my work!

Before returning to our plants let us just grasp the actual technique of the cutting. To prune a normal shoot the knife must always be used, and if you compare the difference between a knife-cut and a secateur-cut the reason will be obvious. The secateur-cut is always rough and nearly always crushes the stem so that the tissues are damaged. This invites infection from "Die-back" disease, and in any case delays and retards the subsequent healing-up process. The knife should enter the stem behind, i.e. on the opposite side of the selected eye (bud) to which you are pruning, and it is drawn through the stem with a slanting cut, emerging about $\frac{1}{4}$ in. above the eye. A glance at the illustration (Fig. 14) will show the correct cut.

The reason for this is that when the eye grows out the

flow of the sap is continuous, whereas if there is a snag left above the eye there is a sort of backwater. This will cause the snag to die down to the junction with the growing eye and the stem may quite likely become infected with the "Die-back" disease, which will extend farther down the shoot. When a shoot is too thick or too

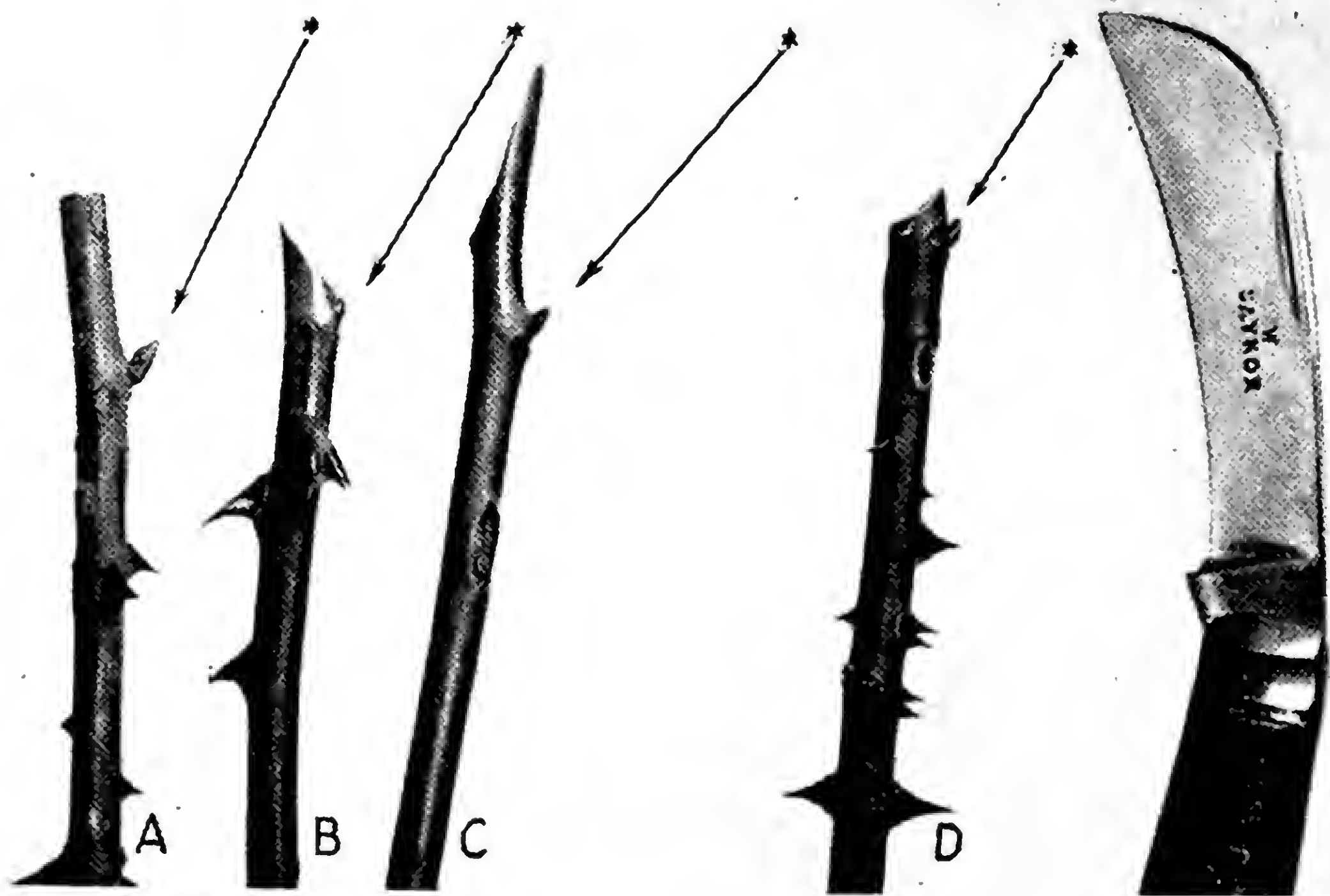


FIG. 14. THE RIGHT AND THE WRONG WAY TO MAKE A CUT
A. A cut made too high above the eye with blunt secateurs. The snag above the eye will die back and the infection spread right down the shoot.
B. Cut with the wrong slant. The snag above the eye will also die back.
C. Cut much too high and too slanting. The part above the eye will die back and spread disease.
D. The correct cut—clean, just above the bud, and the result of using a sharp knife, or the new Wilkinson Rose Pruner.

hard to cut with a knife, the secateurs or saw must be used but in this case always cut a fraction higher up and afterwards pare the cut down smoothly with the knife.

Now let us get back to our plants. Having eliminated all those immature growths which will probably not survive the winter and in any case will certainly be of no use next year, I usually tip back any very long growths. These will possibly catch the winter gales, causing the

plants to rock or sway in the wind and loosen the roots just below ground-level. This autumn pruning will, of course, destroy any possibility of having Roses on the Christmas dinner-table—an aspiration which I have always set my heart firmly against. No living thing can exist without periodical rest and sleep, and Christmas is a time when, in England, Roses ought to be resting and sleeping. If you keep them awake and working then, it can only be at the expense of their well-being next year. In every branch of horticulture you have always to think about next year.



FIG. 15. DEAD, DECLINING, FROST-BITTEN, AND TWIGGY GROWTHS ARE CUT OUT

(By courtesy of "Amateur Gardening")

Now look out for dead shoots and old shoots which have not thrown out good young growth during the year. Cut them clean out down to the base—their work is done. It only remains to clear out any other weak or twiggy growths which can be of no use next year, then this preliminary autumn pruning of bush and standard Roses is complete (Fig. 15). The advantages of starting this pruning business in the autumn are that it cleans up the bushes, eliminates some possible sources of disease, and opens up the bushes to the air, helping them to ripen during the last weeks of the year. Further, it relieves the pressure of work during the much busier weeks of March and April—and if you had three thousand plants to prune, as I have, you would appreciate this point.

There is one important caution to be given about

cutting the old stems away in the autumn. In some soils, especially those which are full of humus and well manured, there is always risk of fungus infection of the large, raw wounds at ground-level, where they may come into contact with or be covered by the soil during the winter. I have had such cases and I have found it well to paint the wound with a disinfectant, such as a paste made by moistening some Bordeaux-mixture powder with a little water. This keeps the wound clean and allows it to heal over more quickly. In wet weather it is, however, soon washed off and it is perhaps better to cover the wound with a permanent protection. I have tried many experiments with this in view and grafting-wax answers perfectly. It has to be kept warm, however, and it is not easy to apply. In the end I have come to Stockholm tar, which disinfects and protects the cut and does not interfere with the normal growth of the plant.

Spring Pruning

We now come to the second stage, which should be started about the end of March in the South of England and finished about the second week in April. In the northern counties the dates will be up to two weeks later.

The autumn pruning is mainly a matter of convenience in spreading over the gardening jobs to be done, of which so many are crowded into the early spring, but if the Roses were not attended to in autumn the first thing now is to carry out that part of the work as already described. Cut out dead wood and wood that has not produced a good new shoot the previous year, disinfect the open cuts, cover them with grafting-wax, or Stockholm hardwood tar, and eliminate all weak twigs.

The next for attention are the "maiden" or first-year plants which have been obtained from a nursery and

planted during or since last autumn. I deal with these now because the treatment is simple and is quickly done and then more time can be spent on the established plants. The plants as sold to you by the nurseryman are called "maiden" plants and they have been grown on in the nursery for two years. The stocks are planted in the spring of the first year, budded in the summer, flowered the following summer, and dug up and sold in that autumn. There is only one way to prune these, namely to cut each stem down to about 3 or 4 in. from the base to an outward-pointing bud. The roots of these young plants have not yet had time to develop and they are certainly not strong enough to support a lot of top-hamper. The roots and the tops will eventually balance each other, but the roots must come first and not until they are firmly established will they be strong enough to support a healthy growth above ground. Circumstances sometimes prevent the Roses from being planted in their new quarters during the autumn, which is the best time, but they can be planted any time up to April or even later if special precautions are taken. Those plants which are, or have to be, planted in the spring are best pruned before they are planted. It is obviously a much easier and more comfortable way of doing the job, holding the plants in the hand or on the bench.

The established plants are our next care and we now have to consider the three, four, or more strong young growths which grew last summer and produced good flowers.

There are some vigorous varieties, such as 'Mrs. Henry Bowles' in particular, which are much happier and produce much better blooms if allowed to grow freely. These varieties should never be pruned hard. Generally speaking I am not at all an advocate of hard pruning.

I like to see big plants built up gradually, but on the other hand I do not want lanky plants, and if they tend to become so, a harder pruning every alternate year will keep them bushy and vigorous. When this is done always cut back hard any growths which are deteriorating in vigour, as will be shown by their not having thrown



FIG. 16. SOUND SHOOTS PRUNED TO ABOUT HALF THEIR LENGTH

(By courtesy of "Amateur Gardening")

strong new growth the previous year. Sometimes elaborate instructions are given, involving different methods of pruning for half a dozen different types or classes of H.T. and similar roses. Candidly I do not believe in any of it. I carry out a perfectly simple and straightforward method which is applicable to all types, with the exception of those extra-vigorous types such as 'Hugh and George Dickson' which need to be trained as semi-climbers or to have the whole shoots

pegged down to a horizontal position. For the others I say (for garden decoration) prune moderately, reducing the length of the stems to about half of last season's growth (Fig. 16). With upright growers, always cut to an eye (or bud) pointing outwards from the centre of the plant. If last summer's growths have branched then reduce the length of the forked or lateral branches by two-thirds the length of their previous year's growth, provided always, in normal plants, that the shoots are not less than about pencil thickness. If the shoots are less than that in thickness then the pruning cuts must be

farther down the stem to give a firm foundation for the new season's growth.

There is one very important provision affecting all my remarks on pruning, and that is regarding damage by frost. In a normal British winter there is not usually very severe frost, at least in the southern parts of the country, but in the exceptional winter of 1947 the conditions were so severe as to kill thousands of plants in all parts and to leave all plants with more or less severe damage. Frost damage is indicated by a discoloration of the pith in the centre of the shoot, which may vary from black to light brown. All shoots with discoloured pith have been more or less hit by the frost and will die. If the discoloration is only yellow or light brown, the shoot may survive until the summer and may even give a poorish bloom, but it will never properly recover. Therefore whenever making a pruning cut after a frost it is most important to examine it carefully and to be sure that the cut shows a perfectly clean healthy greenish to white pith. If the frost-damaged shoots are not cut out completely they will die and afford an opening for "Die-back" disease which may spread farther down the shoots than the first extent of the damage.

It is the upper parts of a shoot which are always affected first; lower down they have had a better chance of ripening, so if a cut shows frost damage try again lower down until the cut shows a clean pith. This is the normal practice after a normal winter. In the spring of 1947, however, it was quite another matter: all methods and instructions about pruning went completely by the board, and practically every plant in the garden was cut right down to ground-level.

There is little difference between my pruning for exhibition blooms and my pruning for garden decoration,

but there will be a difference later in my treatment of the plants for exhibition purposes.

Some varieties, such as 'Barbara Richards' and 'Rex Anderson,' have a sprawling habit, and if pruned according to the general rule to an outward-pointing bud will tend to sprawl still more. Remembering that the branch will grow at an angle from the main shoot, in the direction in which the bud is pointing, it is simple to cut to a bud from which the growth will come to make a balanced, well-shaped plant. Standards are treated in exactly the same manner and there is no need at all for further elaboration, the method I have described being simple but perfectly adequate.

I have no mercy on weak plants which have not made much growth the previous year. "Off with their heads!" as Alice's Queen said. Out they come and off they go to the bonfire. They rarely improve, but if for any reason it is decided to have a little patience with them and to give them another chance, then the best method is not to prune them at all except to cut out any dead wood. Do not let them flower, however, but pinch the flower-buds as soon as they appear, and that will divert their strength into growth instead of flowers. But remember, this is their last chance, and if they do not improve and grow well after a season of this treatment—out with them; they are not paying their way and the ground is too precious to waste on these laggards.

Summer Pruning

Summer pruning! What is that? Well, it really should come under the separate heading of cultivation during the summer, but the way some people hack their plants down in the summer is as severe as the original pruning when the plants were dormant in the early spring, so

I will refer to it here. I sometimes see it recommended that when Roses are cut for vase decoration they should be cut with as long stems as possible down to a good eye near the base; this, it is said, will then cause them to break again more strongly. I warn you that if you do that a few times on several stems the plant will be so weakened that it will require the most careful nursing to bring it back into health again by next year. If you do that to a young first-year plant, it is just murder. Long stems should never be cut off a plant the first year; after the flowers have faded just snip them off and do not loose a single leaf on the stem. The leaves are the lungs of the plant and every leaf you cut away is depriving it in some measure of its ability to live and grow. When cutting flowers for your vases from established plants cut them with stems just long enough for your purpose and not one leaf longer, and cut the stem with a sharp pruning knife exactly as in the original pruning, that is to say with a slanting cut to an eye which is pointing in the direction to which the new growth should go. When the flowers are not cut, but fade on the plant, then, with established plants, cut them back as little as possible, just below the flowering branchlets to a correctly pointing eye.

You can prune hard or lightly when the plants are dormant, but in the summer when the foliage is on the plant, to "prune" hard is one degree of plant-slaughter.

Spring Pruning of Hybrid Polyantha Roses

There are a few special points about pruning the Roses which belong to this class. The majority of them do not like being hard or even moderately pruned, although if you are to bring them into the best flowering condition for exhibition purposes it cannot be helped. For the

moment, however, we are not talking about Rose-shows, but are suggesting the best means of furnishing the garden with continuous colour. To prune in the usual manner means a mass-flowering at the end of June, followed by a more or less blank period while the plants are mustering their strength for another mass-flowering in August. Continuous severe pruning has a discouraging effect on the health and growth of the plant, resulting in gradual deterioration and a lot of dead wood to be cut away annually. On the other hand, if they are allowed to grow naturally they soon become full of choked and tangled, weedy, thin growths which are unable to produce good flowering stems. An alternative method, therefore, is to prune the young wood of last year's growth lightly to an eye pointing outwards from the centre of the plant and which is not less than the second eye below the flowered spray (the top eye is usually weak). This may be a main stem shoot or a lateral. The two-year-old and older wood is now pruned much shorter down to an eye a few inches from the base pointing in the desired direction. Wood which shows that it is declining in vigour, by not throwing out a good shoot the previous year, is cut out completely. By this means the lightly-pruned young wood will come into flower two weeks or so earlier than the harder-pruned older wood, which will then follow in succession, so keeping the bed continuously in bloom. Do not let the bush get overcrowded, however, but see that every shoot is free and neither nearly touching nor crossing any other shoot. Always discard any thin, weak growths which cannot produce good flowers—as a rough guide, no stem should be much less than pencil thickness where it is pruned. By this judicious light pruning many Hybrid Polyanthas can be built up into tall specimen bushes or to form thick and dense hedges.

Dwarf Polyanthas

The Dwarf Polyanthas need only the dead wood cut out and the last year's growths pruned to a correctly pointing upper eye below the flowered spray. Wood which has not flowered the previous year should be cut out down to the base. This class produces fresh young growth from the base every year much more readily than any other, and there need be no fear that hard pruning will spoil the plant.

Wichuraiana Ramblers

There is only one way to prune these Ramblers, such as 'Dorothy Perkins,' and the proper time to carry out the work is in September. After the full flowering period in summer they throw up strong shoots from or near the base. Those are tied in and allowed to grow to their full extent during the season. Then, in September, if the job is to be done properly, the whole of the ties are cut, old and new, and the canes are laid out full length on the ground. All the three-year-old wood is now cut out completely right down to the base, as well as some of the inferior two-year-old—a few of these, however, especially those with strong extending laterals, are retained. These and all the current-year canes, which should not be cut into at all, are then tied back two or three at a time to their support. This class flowers on short laterals from the main canes of the previous year; it starts into growth very early in the new year, and in March every eye all along the canes is bursting forth into shoots which will later be producing the flowers. If, therefore, any thinning or pruning is left to the spring it is impossible to handle these long canes without doing irreparable damage, as the slightest touch to these young shoots will break them off.

Climbing Hybrid Teas

These should be pruned as little as possible, the pruning being limited to cutting away any dead or diseased wood and trimming where necessary to keep them within their allotted space. Severe pruning in any degree may discourage them from growing and producing the flowering laterals. The climbing sports, 'Climbing Madame Butterfly,' etc., will, indeed, sometimes revert to a dwarf or bush habit if severely pruned back. The flowers are produced on the laterals and sub-laterals, and these should be pruned back to three or four eyes from where the shoot started from the older stem. When it becomes necessary to thin the tree out, always cut away the older wood whenever possible, as it is the young wood which produces the best flowers. Other climbing Roses, of which 'Mermaid' and 'Madame Alfred Carrière' are notable examples, must not be pruned at all, only trimmed or cut back when necessary to keep them to the shape and size required.

Hybrid Wichuraianas

These, such as 'Albertine,' 'Chaplin's Pink,' 'Paul's Scarlet,' etc., and climbing Hybrid Polyanthas, can be allowed a little more freedom, for they make strong extending laterals which when trained and tied in will cover an archway or pergola. It is important, however, occasionally to cut hard one or more of the older stems, as when this is done the plant will be helped to throw out young shoots to clothe the base of the plant. I have seen 'Chaplin's Pink' with five or six thick stems completely bare of foliage or flowers up to 6 ft from the ground. This was the result of allowing it to grow of its own sweet will.

The flowers are produced the second year on laterals

from the leading stems. These laterals may be anything from 1 ft to 3 ft long and should be shortened to about three eyes in the autumn. These eyes in turn will, during the third year, produce sub-laterals, on which the next crop of flowers will come.

In the autumn of this year we have to consider whether the leading stem (which, however, may itself be an extending shoot from one of the main stems) should be cut hard back. If the plant is healthy and you have the space to spare it may be allowed to grow on. Do not, however, let the lower part of the plant get bare of shoots and foliage; if it is inclined to do so, then from time to time one or more must be cut hard back again.

Hybrid Musks, other large bush Roses, and the Species should not be pruned or interfered with at all, except to keep in good shape and to eliminate unfruitful or dead wood.

CHAPTER IX

PROPAGATE YOUR OWN PLANTS

It is generally understood that the majority of Rose-plants growing in the garden are not on their own roots but have been "budded" on to a free-growing wild or species Rose. By this means an "eye" of the variety which it is desired to propagate, and which is called the scion, is inserted into the bark of the selected stock or wild Rose which is to be used for its roots.

It is possible to propagate some varieties by taking cuttings (this will be dealt with later), but the majority, especially yellow Roses, require a better root system than they can produce themselves, if they are to do well. The normal method of propagating is therefore by budding. We will now consider the various stocks, i.e. root stocks, which are most frequently used.

I. The Under-stocks

Standards are usually cut out of the hedgerows in the country, a grub-axe being used to lift them with a portion of root. These are then trimmed up, planted, and tied to a stake to straighten them and prevent them from being blown about. Fig. 17 will show how they should be treated. It is possible to buy cultivated brier standards, for budding, from some nurserymen. Do not go out into the country lanes and start chopping down the hedges indiscriminately, for the farmer may not fall in with your ideas; and it is well to have a clear understanding with the landowner on the subject.

The other stock used frequently for standards is the

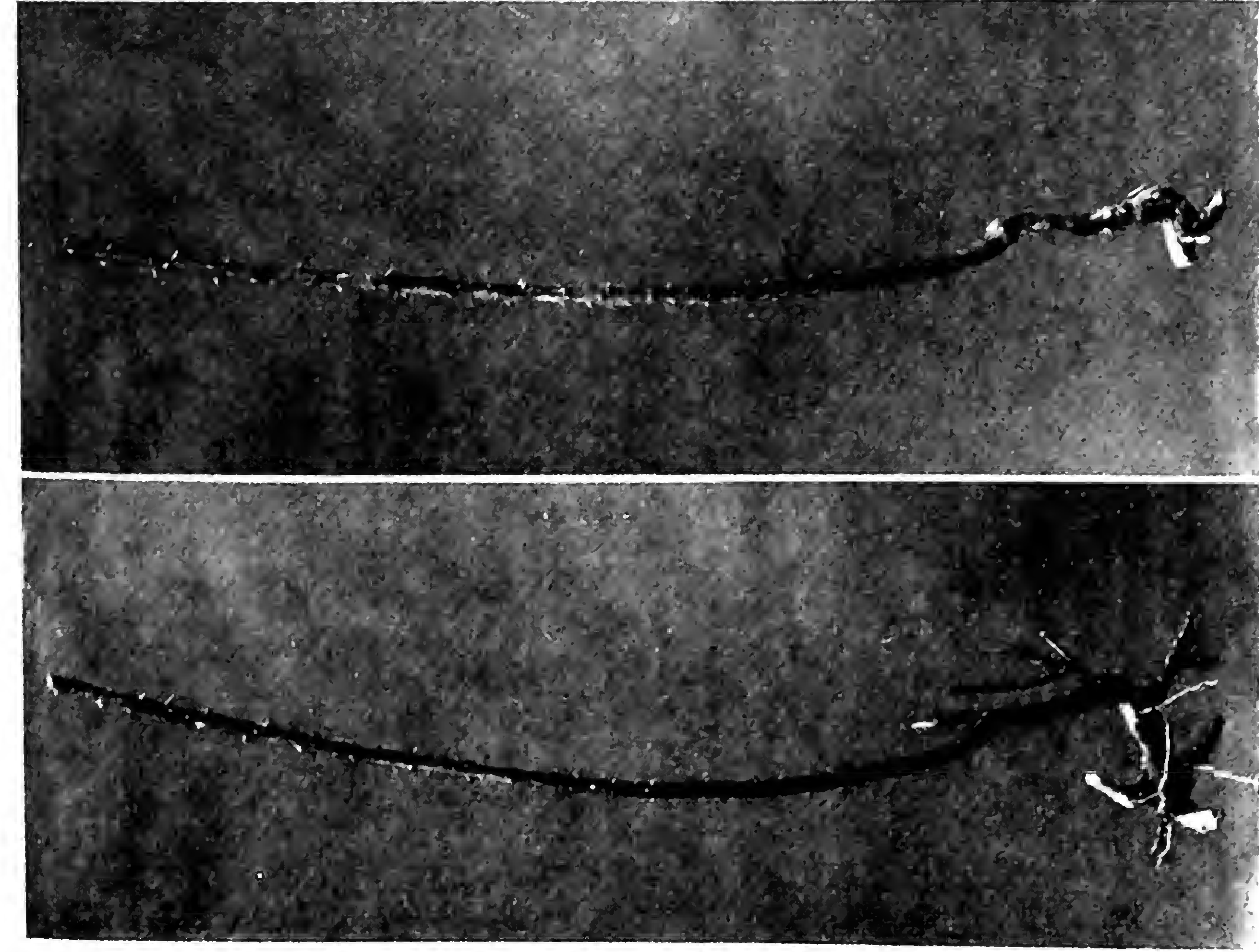


FIG. 17. A STANDARD BRIER

Left. As cut from the hedgerow, and the same trimmed for planting.

Above. The same ready for budding in July.

rugosa, and with this variety the eyes are inserted into the main stem, but the briars are budded on the laterals or side growths. The *rugosa* is easy to bud and with moderate skill it rarely fails, but it has a drawback in continually throwing up suckers from the roots, which are sometimes difficult to eradicate. Rooted *rugosa* standards, for budding on the main stem, can be bought from nurserymen, and it is perhaps hardly worth while to strike them from cuttings for oneself.

The keen rosarian, however, will get down to the earth-level for the bush Roses, and for these a wide choice of under-stocks can be used.

Many of the English soils incline to an alkaline reaction. On the heavy loams with clay subsoil which predominate in Sussex, Middlesex, Essex, and other parts of the country, large quantities of lime are necessary to make the soil workable and release its fertility; this added lime helps the alkaline reaction and in such heavy soils there is no doubt that the *canina* is the best on which to bud Roses. Many of the English nurseries use *canina* as an under-stock for budding on to, and long experience has proved that for many conditions in this country this is satisfactory for general use. *Laxa*, however, is used extensively by some nurseries and often gives better results than *canina*, and *multiflora* is also coming into general use.

In North America the soil is of acid tendency, particularly in the eastern parts of the United States. In a census taken a few years back, it was found that the soil of the majority of the Rose-nurseries gave a reaction of round about pH 5.6 (for an explanation of pH see p. 98). In this type of soil the *canina* is a complete failure as an under-stock, and is not used at all. The *canina*, moreover, will not stand periods of prolonged drought, and in

America this probably has a lot to do with the choice of stock.

The species most widely used for the purpose in America is the *polyantha simplex*, or, as it is known there, the *multiflora japonica* or one of its many varieties or selected strains. Millions of rose plants are sold annually having this species as an under-stock. In the western or north-western states the 'Ragged Robin' or 'Gloire de Rosomanes' and *odorata* (*R. chinensis major*) are used, which suit the climate and soil conditions of those parts, but throughout the country generally the use of the *polyantha* varieties predominates.

In the light and acid soils of America the *polyantha simplex* appears therefore to be unquestionably the best under-stock. Nevertheless it will also tolerate alkaline soils. I am reminded of a late member of the National Rose Society who lived on the top of the Hogsback in Surrey, where he had about 9 in. of light marly soil on a substratum of pure chalk. I am informed that he used the *polyantha simplex* stock exclusively and there is no doubt that he grew fine roses and won many prizes at shows, but I am not aware of his methods of cultivation.

In heavy clay soil this stock is not so satisfactory, owing possibly to the difficulty of moving the plants without damaging their fine and rather brittle root-system, the fibrous roots of which die very quickly if allowed to dry. In heavy soil it neither roots so easily nor grows so vigorously as on light land. In such heavy soils *laxa* should be tried if there is any dissatisfaction with the briers. In my own garden the soil is light, sandy loam, originally deficient in humus and of pale yellow colour. To improve it large quantities of compost and granulated peat were dug in when the beds were made, and quantities are added as a mulch every year with ample dressings of

stable and farmyard manure, all the lawn-mowings available, and frequent applications of liquid manures. The natural result is that the soil inclines to an acid reaction which I do not maladjust by the over-use of lime. The only lime added is in the form of powdered chalk about 2 oz to the square yard every other year. It also acquires some occasionally from the tap-water and also from the "superphosphate" used in the annual dressing of chemical manure and in the liquid manures given in May and June. In this soil it is obvious at a glance that the plants budded on *polyantha simplex*, whether they have been transplanted or not, are in every instance better and bigger than those on *canina*. The variety which I favour is rather heavily thorned: this is no drawback as the thorns easily snap off when budding. I had some cuttings of a thornless variety from America given me by the late Mr. H. R. Darlington which proved very good, but the wood seemed softer and I preferred my own. The plants on this stock appear for some reason to be hardier than those budded on *canina*, for, of about three hundred plants I had killed by the winter frosts of 1947, nearly 90 per cent were on the latter stock. Another interesting point is that in the driest or most rainless weather the *polyantha* continues to flourish, but *canina* may stop growing completely.

The *polyantha* stock plants transplant well. They never suffer from drought and, with their extra-vigorous root system, grow away at once and by the late summer look like old-established plants, whereas those on *canina* take a full year to recover from the move. Suckers from the *polyantha* are extremely rare, but if they do come and are once cut away they never come again. It is an extraordinarily easy stock to prepare. Cuttings are made in the autumn from ripe wood not more but rather less than

$\frac{1}{4}$ in. in diameter and about 10 in. in length, the cut being made just below the lowest eye and the eye being cut out: other eyes of the lower half are also excised. The cuttings are then tied in bundles and half buried in sand for the winter—this is merely a matter of convenience for my beds are never ready for setting out the cuttings until early spring. In March they are taken up, pushed into the soil of the beds about 3 in. and trodden in, and the soil is drawn up round them about 6 in. to keep them moist. In a few weeks they have rooted, if the soil is light sandy loam, and they are ready for budding in July. In heavier soils they are best placed in position the previous autumn. In late summer it is important not to let the stocks grow too large—they can be restrained by trimming back the growing shoots.

My average “take” is about 97 per cent. Care must be taken not to let the scions get damaged, and when they grow out particular care must be given to staking. During the first summer the joint is very insecure and the growth is liable to blow out, but growth is rapid and the scion quickly becomes one with the stock. There is a tendency for the buds to grow out in the autumn, and unless they are well earthed up these are liable to be killed by winter frosts.

I am informed that the great Rose-nurseries at Lyons in France make a regular custom of dividing their budding into two sections, one on *polyantha simplex* and the other on *canina*. The plants on *polyantha* are for their northern customers, while those on *canina* are sent to the south. The reason they give for this is that in the north the plants on *canina* are not sufficiently vigorous to meet requirements, but in the south of France they grow perfectly in gardens where there is usually ample water supply. On the other hand, in the south the *polyantha* root-stock

plants would grow too big, but in the north of France they produce much better plants than those on *canina*.

Three special points must be borne in mind: (*a*) the *polyantha* stock must not be allowed to grow too big either before or after budding; (*b*) in heading back, the cut must be trimmed with a knife, as secateurs invariably damage the bark, which is very soft; (*c*) very careful staking is required when the scion grows out.

To sum up, *canina* still appears to be the best understock for heavy soils. It is useless for acid soils and is unsatisfactory in hot climates unless adequately irrigated. Of the selected varieties *Broegs* and *Pollmeriana* appear to be the best and are infinitely better than heterogeneous varieties such as might be taken from the hedgerows. *Laxa* is a good alternative and in many soils makes bigger and better plants. *Polyantha simplex* (syn. *multiflora japonica*) and its varieties appear to be the best for light soils, and especially for those of an acid tendency and in hot or dry climates.

Cuttings of *canina* varieties are taken in the same manner as described for *polyantha simplex*, but are inserted during the autumn in the ground about 6 in. deep and 4 in. apart in cuttings-trenches. They remain there for rooting till the following autumn, when they are taken up and planted out for budding the following summer.

II. Taking Cuttings

Many varieties of more vigorous character, the Ramblers, and Polyanthas in particular, can be propagated by cuttings, and by so doing you obtain your plants on their own roots. This, however, is not always the way to get the best plants, as the roots of the wild species upon which the cultivated varieties are usually "budded" are more extensive and more vigorous.

To take cuttings, choose well-ripened shoots of first-summer growth about 10 in. long in November, and make a clean cut with a knife immediately below the lowest eye. To do this it is best to cut first with secateurs about $\frac{1}{4}$ in. lower than the eye and then to trim it up to the right place with a sharp knife. The upper end of the cutting should be trimmed above an eye with a slanting cut, as in pruning. Take out a trench about 6 in. deep and place along the bottom 3 in. deep a mixture of half sand and half sifted granulated peat. Place the cuttings about 4 in. apart in this, so that one-third protrudes above the surface of the soil, and tread the ground thoroughly. If cloches are placed in position over the row of cuttings they will have a better chance. There are certain hormone root-forming substances now available which will probably assist the formation of roots. The cuttings are placed in a very weak solution of this chemical for a given number of hours before being placed out. The makers' instructions should be followed exactly.

The cuttings must remain undisturbed for a year; they may be lifted in the autumn. Some will have rooted and may then be planted in their proper places. By this means you will have, or *may* have, flowering plants in two years. By "budding," however, first-class flowering plants can be produced twelve months after the bud or eye is inserted in the stock.

III. Budding

Sooner or later every keen Rose-grower will, indeed must, learn the craft of budding. A Rose-nurseryman once remonstrated with me for teaching a group of young amateur gardeners this interesting technique, saying that it was depriving the nurseryman of his business. "Not so," I replied. "The gardener who is keen enough to

learn how to bud Roses will always be keen enough to go on increasing his collection, and will never have enough Roses in his garden. The more he buds the more he will also want to buy!"

Budding is a perfectly simple operation, though you cannot expect to become expert in a few days, any more than you could in any other craft. The first step is to obtain stocks in which to inset the buds or eyes. These can be obtained from most nurserymen, but to make it as easy for yourself as possible it is better to obtain "rooted *multiflora* cuttings" or "rooted *Broegs canina* cuttings." There are many kinds of stocks which can be used, both cuttings and seedlings, and I have discussed stocks in general in the previous chapter, but these two kinds will be the easiest to make a start with. A beginner is likely to have a number of failures, so the stocks are best planted the previous autumn in a separate bed in rows about 2 ft 6 in. to 3 ft apart with 12 in. between the plants. About the second week in July the stock plants are ready for working and a start can be made.

You will require a best-quality budding knife, which has one short blade folding into an ivory handle, the latter having a thin wedge-shaped end which is used for lifting the bark of the stock. The blade must be honed to a keen edge on a fine-grained hone and then stropped to a razor-edge sharpness. Alternatively there are some wooden sticks made which are covered with different grades of emery-paper and sold by suppliers to dental mechanics and working jewellers. I find these emery sticks covered with the finest oo grade the best possible means of putting the final edge on my budding knife. The reason for this keen edge is that in cutting out the eye an absolutely clean cut is essential, for the slightest tear or roughness will spoil the "eye."



FIG. 18. THE STEM WITH LEAVES
AND THORNS TRIMMED

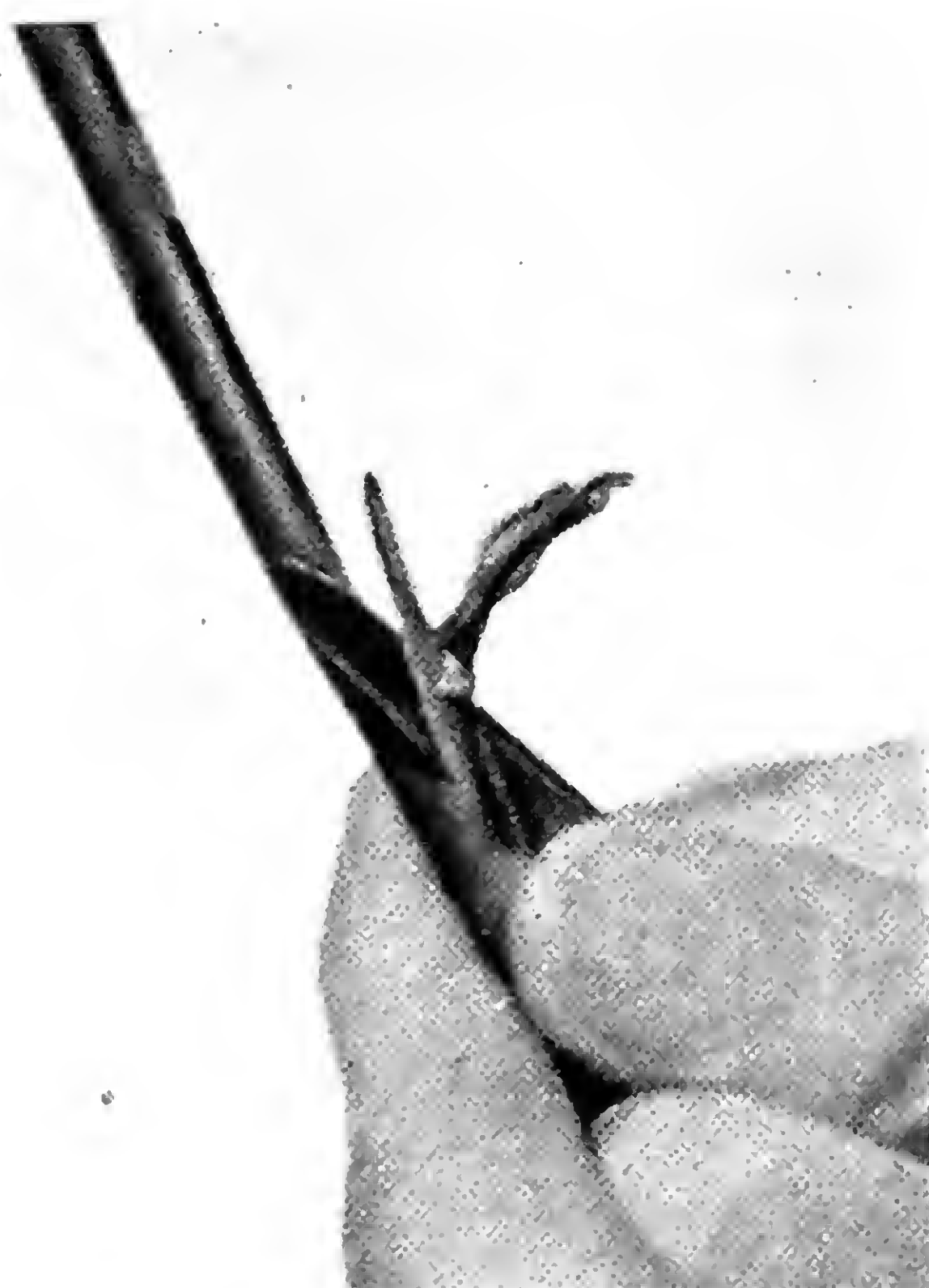


FIG. 19. CUTTING OUT THE SHIELD



FIG. 20. PULLING OFF THE BARK

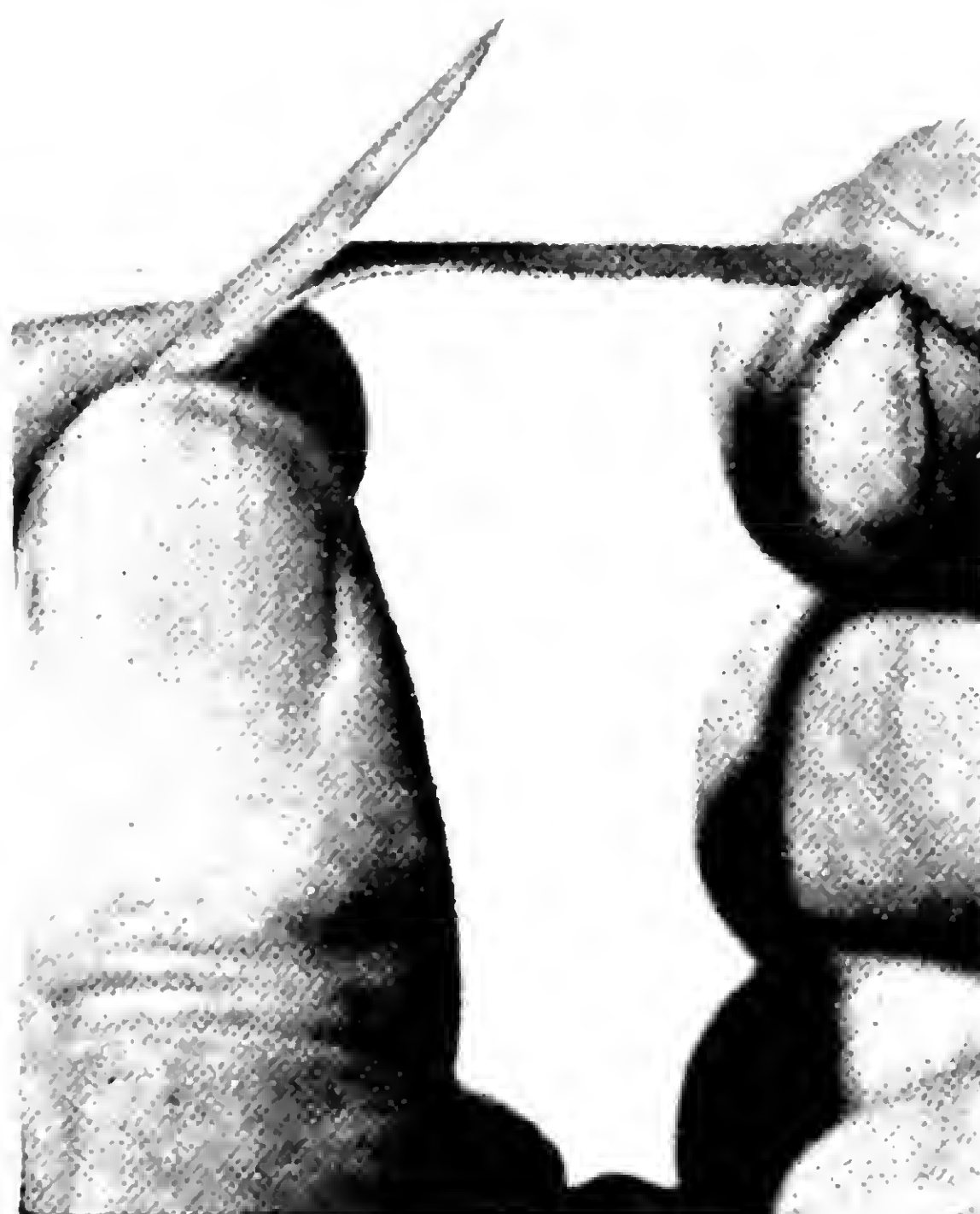


FIG. 21. PULLING THE BARK DOWN
FROM THE WOOD

The professional budder will work down the rows of stocks in a standing position with an incredible speed, doing many hundreds a day. I confess I am more stiff in the joints and I have to work with one knee on the ground, and a rubber kneeling-pad makes it more comfortable. I kneel on my right knee with my left foot rather forward to balance the body, then bending over tuck away under my knee the stray branches which are in the way, scrape away the loose soil, and wipe the stem clean with a rag. When the plants are to be moved next year the budding point may be above the level of the soil, but when the stocks are being budded to remain in the beds where they are, the budding point should be about 1 in. below the general level of the soil.

Obtain and prepare previously some best-quality, soft, broad raffia; cut it into lengths of about 24 in. and select pieces of about $\frac{1}{4}$ in. width for tying in the eyes. The eyes should now be got ready. To do this, cut a shoot from the variety you wish to propagate, which has a good flower in full bloom stage or from which the petals are just falling. Cut the leaves off, leaving 1 in. of the stalk (Fig. 18); this is to hold the "shield" with later. Now hold the stem of the shoot firmly in the left hand with the forefinger supporting the stem immediately beneath the eye which is now to be cut out. Insert the knife about $\frac{1}{2}$ in. above the eye with its leaf-stalk (Fig. 19), and cut firmly under the eye and up again $\frac{1}{2}$ in. below the eye, but do not cut through the bark at the finish of the cut. Now close down the right thumb firmly on the leaf-stalk and eye, pressing them against the blade of the knife (Fig. 20), and pull the piece of bark off downwards from the stem. The piece which has been cut out is now held firmly between the left-hand finger and thumb with the cut side up and the piece of loose bark is



FIG. 22. SEPARATING THE
WOOD



FIG. 23. THE BACK OF THE
SHIELD, SHOWING THE EMBRYO
BUD

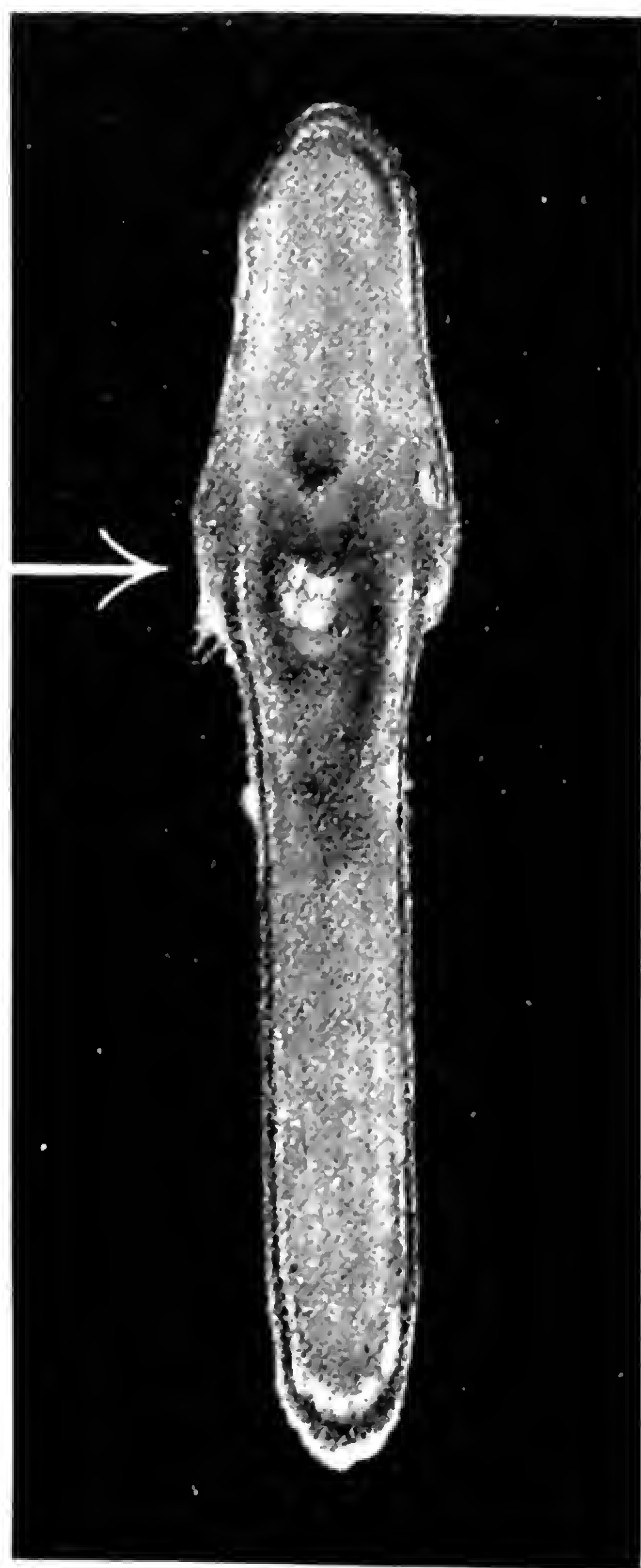


FIG. 24. THE BACK OF THE SHIELD ENLARGED

Left. Showing the growth torn out.

Right. The growth as it should be, flush with the shield.

pulled down (Fig. 21); this separates it from the woody part. Take hold of the woody part with thumb and first finger-nail and snatch it sharply away with a slightly sideways movement (Fig. 22). The woody bit should come cleanly out, leaving the bark and the embryo or eye clearly visible flush with the inside of the bark (Fig. 23). If there is now a hollow here, the embryo has been pulled out also, and the shield is useless. Sometimes the embryo is not flush but recessed so that on being tied into the stock it would not touch the stem and would never make a proper join (Fig. 24).

The final step in preparing the shield is to trim off the strip of bark $\frac{3}{8}$ in. below the eye with two clean cuts of the knife, one from each edge at an angle and to a point (Fig. 25). The shield must be made ready immediately before inserting it into the stock, for in even a few minutes it will become dry and useless; it is therefore really better to make the cuts in the stock and prepare this first before taking the shield. Having wiped the stem clean with a rag, make a cut up the stem, but only just deep enough to cut through the bark, about 1 in. long and a cut across the top of about one-third the circumference of the stem, the two incisions forming a T. Then, with the thin wedge-shaped ivory end of the budding-knife, lift the bark first on one side and then on the other (Fig. 26). The shield held by the leaf-stalk is slipped into the cut and the overlapping upper end of the bark cut off (Fig. 27).

The operation is now finished by tying firmly round with raffia. Place the middle of the length of raffia on the bottom of the cut, pull both the ends round to the back, cross over, then both ends to the front, cross over, and so on. Three turns below the bud and three above the eye should be right (Fig. 28). Do not strangle the



FIG. 26. THE INNER LAYER OF A STANDARD



FIG. 28. THE INNER SURFACE



FIG. 27. THE SURFACE



FIG. 25. THE SURFACE AND THE OVER-
LAPPING PART OF BARK CUT OFF

eye by tying too tightly or too closely to it, as presently it will be growing. This raffia tie need not be removed, since being close to the ground, it soon gets covered by the soil and will rot off in time to let the eye grow out and become the new plant.

Budding *rugosa* standards is done in exactly the same manner except that two eyes may be inserted, one on either side of the stem and at any height you like. This variety ripens quickly and gets hard and will not usually work after July, but it may be started in June. Brier standards are budded on well-grown laterals or side shoots of the current year's growth, as the bark of the main stem is too hard to lift, and the cut is made as close as possible to the main stem and the crossing of the T or upper end of the cut towards the tip of the shoot. To do this, stand facing the main stem.

The raffia ties do not rot off from standards, so they should be slit up after a month to allow the eyes to swell up and grow. At the same time, as also with the dwarfs, the shields may be examined. If they are green the "take" is good. If the shield is brown and dead then this is a failure; sometimes it may be possible to bud again lower down. A failure on a briar standard requires the shoot to be cut cleanly off, when another shoot may grow from the side for budding in August.

The final stage in the making of your new plant is in late February or March the following year. It is then that the stocks are "headed back" by cutting off the wild growth about $\frac{1}{2}$ in. above the inserted eye of dwarfs, *rugosa*, and brier standards.

The pressure of the secateurs is liable to bruise the stem so I always pare off the secateur-cut with a sharp knife. In the case of dwarfs this cut is very near the ground and sometimes below ground-level, and in my garden

this has occasionally led to the cuts becoming infected with bud or stem canker from contact with the soil. During recent years I had much trouble from these large wounds on the level of the soil, caused in the heading back or pruning, which have become infected by this disease, and I also had a number of cases of die-back of the stock. I have now adopted the policy of disinfecting all open cuts at or below ground-level by painting them with Stockholm tar, which completely seals them and makes them airtight. Since doing this I have had no further trouble with either of these infections. The same procedure followed when heading back standards or making large pruning cuts also prevents sawflies from laying their eggs in the pith; if these eggs hatch out they turn into greenish grubs which eat their way down the centre of the shoot.

In the trade nurseries the heading back is done with secateurs at 1 in. or more above the bud, which is also well above ground-level and therefore is not likely to become infected. These snags may or may not have been cut off when the plants are delivered. After heading back push into the soil a bamboo cane about 2 ft 6 in. long to which the new shoot is tied when it grows out.

During the first year of growth the new plant is very insecure at the juncture with the stock and a strong gust of wind is liable to blow it out, when all the year's work will be spoilt. If the scion grows out in the autumn it should be staked at once to prevent its being knocked out, and as it will probably not have time to ripen it should be well earthed up as protection against winter frosts.

CHAPTER X

MANURES AND MANURING

ONE of the mistakes of the old-fashioned gardener was the placing of layers of farmyard manure over the surface of the beds in the autumn to keep them warm, as he said, in the winter. It will do nothing of the sort; on the contrary, during wet weather it will keep the soil airless, cold, and clammy, while in mild spells it may stimulate the plants into premature growth by the washing of the nutrient salts into the soil. Nothing could be worse for the plants, for during the winter they need to rest as much as possible, and in any case premature growths are almost certain to be killed by the late frosts. No manure at all should be applied to the beds until after the spring pruning, which will be finished about the middle of April. After the pruning, the beds will be in an awful mess and should be lightly forked over and generally tidied up. I then scatter bone-meal over the surface of the beds at the rate of about a handful to each plant, after which the mulching of farmyard or stable manure is applied.

It is sometimes stated that farmyard manure is better for light soils and horse or stable manure for heavy ones. In the long run, however, there will be little difference for practical results. Stable manure contains a much higher proportion of straw and to this extent helps to lighten heavy land; but the straw will be rotted into humus before very long, and I cannot see that it matters which is used. Manure must be kept sufficiently far away from newly planted or first-year Roses for none of the nutrient salts from it to be washed down to their roots.

Around the new plants the soil is covered with granulated peat, so that when the job is done the whole bed is evenly covered over with a surface mulch. The lawn-mowings also, as soon as they are available, are lightly scattered over the surface. This top dressing need not be disturbed at all, or as little as possible, until the autumn, when it is lightly forked into the upper layer of the soil.

The Compost Heap

The only substitute for natural animal manure is material from the compost heap, and I will describe my own method of preparing it. The foundations of the bin to contain it were made by laying down about a 2-in. floor of concrete 7 ft 6 in. square but with four land-drains standing upright in it. As the concrete dried the drain pipes were broken away leaving the open holes through which excess water could drain away and worms enter from below. Three courses of perforated concrete blocks were then cemented down to form the lower part of the walls. These blocks are $18 \times 9 \times 9$ in. and there is thus a space 6 ft square left in the middle. The remainder of the walls were made of breeze blocks, cemented and built up to a height of 4 ft 6 in. but leaving in the front wall an opening 3 ft wide, which can be filled in with loose blocks as the material inside accumulates.

It is usual to recommend leaving the plain earth beneath the compost heap, as it is desirable to let worms get into and work in it. I have, however, allowed a few holes for them to enter and the convenience of having the concrete beneath when forking the stuff out is considerable. The holes in the concrete blocks are to allow ample aeration of the contents.

Of course, a much simpler bin can be made by just driving in iron stakes to hold in position four galvanized

corrugated iron sheets. I used this for a number of years until I built my permanent structure. During the course of the year all vegetable refuse of every kind goes into this bin: kitchen waste, garden vegetable waste, hoeings, hay, straw, dead leaves, rotten apples, weeds, soft hedge-clippings, cuttings from herbaceous plants, everything of the sort available. In a secluded part of the garden is a grass plot, which I keep manured with some sulphate of ammonia, and it is surprising what a quantity of scythed hay I get off this plot for the compost heap. The contents of this bin need to be kept moist and if there is not sufficient rain it must be moistened with the hose-pipe or watering-can. During the process of fermentation sufficient heat is generated to destroy most of the weed-seeds.

If some stable manure is available, the resulting compost can be made still more valuable by sandwiching a layer of the manure between every 6 in. or so of the green refuse. The stable manure helps the latter to ferment more quickly and to rot down to the condition necessary for use. About November the whole contents of the bin are forked out, mixed up so that the whole gets equally well rotted, and are then forked back again to be ready for use in April. The compost can then be spread over the surface of the beds in exactly the same way but as a substitute for the animal manure, or in conjunction with it to make the latter go farther.

Soil Chemistry and Plant Nutrition

I am neither a scientist nor a chemist, nor will the majority of my gardener friends be, but a little understanding of the chemistry of the soil should enable us to grow our plants to better advantage.

The surface of the earth, the soil of our gardens, is composed of a number of inorganic elements in combination

with one another, many of which take part in the building-up of the growing plant. Oxygen, hydrogen, and carbon, of course, are essential to the plant and are mainly obtained from air and water. Disregarding these elements there are four major elements: nitrogen, phosphorus, potassium, and calcium—all essential for roses; five minor elements: magnesium, sulphur, sodium, silicon, and iron; and a whole host of trace-elements: chlorine, boron, manganese, zinc, copper, and so on. The garden compost supplies all the major elements and such of the minor and trace-elements as are required by the plants, except nitrogen which is usually deficient. Farmyard manure, by which is meant the excreta of farmyard animals mixed with and held up by the straw, provides the only complete fertilizer supplying *all* the requirements of plant life.

The fullness of the life of the soil requires the return to it in due course of all that is taken out of it to produce plants, and dung is the most complete form of return. During the course of the year you cut flowers and take them away, you prune the bushes and take away the prunings: all this has to be made good again. An inorganic or chemical fertilizer can be made which will comprise exactly the major and minor elements required to grow any given plants, and with such a fertilizer plants such as Roses will grow, and grow well, for a time without the addition of humus, but sooner or later the soil will become exhausted, the living soil will die, and the plants growing in that soil will die too. What is it that will be lacking?

Humus

The living or organic part of the soil has not been replaced and that can be replaced only by the addition of organic matter, organic as distinct from inorganic chemicals.

The organic material of the compost or dung contains the living organisms, the living bacteria which alone can support the life of plants and enable them to feed on the inorganic chemicals. (You will remember the apparently contradictory technique by which some plants can be grown in pure sand and in water by the use of chemicals only. That is an interesting subject but it has no relation to healthy garden growth or to practical gardening, so I will not discuss it here.)

It is the work of those micro-organisms, the living bacteria of the soil, that enables us to grow our Roses and that enables the roots of our trees to absorb and digest all the elements required by the plant and to dissolve the normally insoluble minerals which build up the plant's structure. To grow our plants to perfection they must be fed like every other growing thing with a properly balanced diet, firstly with the organic compost and/or dung, and secondly with the mineral chemicals.

Chemicals in a Rose-bush

During the last quarter of the nineteenth century there lived a German chemist by the name of Wolff, who analysed all sorts of everyday organic substances into their inorganic elements, after complete calcination. He wrote a book on the subject and in it will be found his analysis of the ashes of a Rose-bush. Taking all parts of the plant together, i.e. roots, stems, leaves, and flowers, he found that the Rose-bush consisted of the following percentages of the chemicals by atomic weights—

ELEMENT	FORM	PERCENTAGE
Potassium	K ₂ O	27·06
Sodium	Na ₂ O	2·67
Calcium (lime) . . .	CaO	34·23
Magnesium	MgO	7·48

ELEMENT	FORM	PERCENTAGE
Iron	Fe_2O_3	2.63
Phosphorus	P_2O_5	19.97
Sulphur	SO_3	2.16
Silicon (sand)	SiO_2	2.94

with traces of many other elements which there is no point in listing here.

The sodium, silicon, chlorine, and the trace-elements are normally either contained in the garden soil, from which they are not readily exhausted, or supplied in the compost material and dung. Although present only in small proportions they are nevertheless essential for the permanent health of the plants, and that is one reason why organic manures are essential as well as the chemicals. The principal elements required by the Rose are potassium, phosphorus, calcium, sulphur, magnesium, and iron, but there is another not contained in the analysis, nitrogen. A mixture containing the elements required for balanced nutritional purposes may be made according to the percentages of the analysis and the atomic weights of the different elements. It will be approximately as follows—

PARTS BY WEIGHT	
Potassium nitrate	$2\frac{1}{2}$
Ammonium sulphate	$1\frac{1}{4}$
Calcium superphosphate (super-phosphate of lime)	8
Potassium sulphate	5
Magnesium sulphate (Epsom salts)	$1\frac{1}{2}$ (in an alkaline soil take 2 parts of magnesium sulphate)
Iron sulphate	$\frac{1}{2}$ (in an alkaline soil take 1 part of iron sulphate)

Thoroughly to mix these chemicals in a dry state is not easy, and they would not keep well. I think the best method is to dissolve each of the above chemicals

separately, as so many pounds, in hot soft water or rain-water, and then make the complete mixed solution up to 20 gallons; or use the same proportions in smaller quantities. This makes a stock solution for storing. For use I stir it up well and take about half a pint into a 3-gallon can of water; the 3-gallon can will go round about eight plants. The solution should be poured not nearer than 6 in. away from the stem of each plant, and all round it. Care must be taken that the solution does not fall on the Rose foliage. This liquid manure should never be given when the soil is dry—in hot dry weather the soil must first be well watered with hose-pipe or watering-can. Once more I would emphasize that no liquid manure nor any other must be given to any plant that has been planted less than one year. An apt illustration of this was once made by saying that beef-steak and beer is good food for a grown working-man but would hardly be given to a baby. For garden purposes this liquid feed may be given once every three weeks or so from May to the end of July. Sometimes I add in addition a heaped up teaspoonful of dried blood to the 3-gallon can to give some additional nitrogen in an organic form. Preparing for Rose-shows is a different matter but I will deal with that later.

Some Useful Fertilizers

It may be worth while giving a more particular description of the qualities of these fertilizers and of some others which are sometimes used in the garden.

SULPHATE OF AMMONIA has a high content of nitrogen, must be used sparingly, is a quick stimulant, and is harmful in excess. It is well held in the soil and has a strong acid reaction.

PHOSPHATE OF AMMONIA contains phosphorus and nitrogen. It is sometimes used for pot-plants under glass.

BONE-MEAL, a very useful slow-acting organic fertilizer containing phosphorus and a little nitrogen. It is safe to use under all conditions and has an acid reaction.

DRIED BLOOD is an organic source of nitrogen and is a valuable fertilizer, quick-acting and safe in moderation, stimulating growth, and giving colour to the foliage.

FISH GUANO (pure), a valuable organic fertilizer, containing most of the essential nutrients and also trace-elements. I give a handful to the square yard in April, in addition to the other manures.

HOOF-AND-HORN, a safe and slow-acting organic form of nitrogen, usually used in pot-work.

HYDRATED LIME, a quick-acting form of lime, most useful on heavy soils, to be used at the rate of about 4 oz to the square yard or according to the pH of the soil (see p. 98). To be applied during the winter. Large quantities can be dug into and mixed with clay subsoil; it helps to break this up and render it more porous.

GROUND CHALK, a slow-acting form of lime and better for light soils as a surface dressing. Alkaline.

SULPHATE OF MAGNESIUM (Epsom Salts), an essential constituent of the soil and said to give colour to the blooms. Strongly acid.

NITRATE OF POTASH (Saltpetre) contains potash and nitrogen and is a quick-acting supplier of these two essential elements. Stimulates growth but must be used with caution and is better in conjunction with other essential fertilizers. It is soon leached from the soil, which is why to supply nitrogen I use ammonium sulphate as well, the latter being retained better.

SULPHATE OF IRON, an essential fertilizer. Is used to counteract over-alkaline soils, and must be specially supplied if they are deficient in iron.

MURIATE OF POTASH, the popular or common name

for potassium chloride, supplies potash and is useful for that purpose in the vegetable garden. IT MUST NOT BE USED FOR ROSES. Has some properties similar to those of sodium chloride, common salt (which it frequently contains as an impurity), and just as this is detrimental and poisonous to many plants, especially those having a fibrous root-system, so is muriate of potash toxic to Roses. I have known many instances where Roses have been killed by it.

SULPHATE OF POTASH supplies the potash without which no plant can thrive. An essential fertilizer which gives substance and healthy growth and induces a strong resistance to disease, especially Black Spot. In excess may cause a hardening of the stems and stunted growth. It is strongly acid.

BASIC SLAG provides lime and phosphorus. It is especially useful in helping to break up and render clay subsoil more porous.

FLOWERS OF SULPHUR is used to counteract an excess of alkalinity and is very useful on chalky soils.

WOOD ASH may be used instead of sulphate of potash, as it contains a high proportion of potash. It also contains a great deal of calcium (lime) and is highly alkaline. Is especially useful on heavy soils.

Acidity and Alkalinity

pH is a symbol used, followed by a figure, to express the state of acidity or alkalinity in the soil. The figure 7 indicates neutrality, figures below 7 indicate progressive degrees of acidity, and figures above 7 progressive degrees of alkalinity. Some plants such as box and juniper grow best in an alkaline soil, and some plants such as azaleas and rhododendrons will grow well only in an acid soil. Lime is alkaline; sulphur, sulphate of ammonia, sulphate

of iron, etc., induce an acid reaction. Heavy land needs the addition of considerable quantities of lime to set free the nutrients for the plants to feed on and to break up the subsoil. Most garden soils which have been well cropped and worked become acid and then need lime to restore the balance. Roses will grow more or less well



FIG. 29. A SIMPLE pH SOIL-TESTING OUTFIT
(By courtesy of "The Smallholder")

in most soils, but do not do their best in alkaline or chalky soils where the pH is above 7. In such cases acid-inducing dressings are needed. Chalky soils very quickly absorb or destroy the humus of the compost heap and manure and such soils, therefore, require very much larger quantities of organic manure than any other soil. The best growing soil for Roses should be of slightly acid reaction, and should show on test a reaction of

about pH 6 to pH 6.5. Such tests can be very easily carried out by the amateur gardener, and for those who take their hobby seriously it is worth while having the soil tested.

There must always be a sufficiency of lime in the top-soil, because, as will be seen from the Wolff analysis, lime constitutes 34 per cent of the total calcined weight of the Rose-plant. Nevertheless it is important that the liming should not be overdone, because that will create a state of alkalinity in which Roses do not do well. In a fresh soil which is light in colour and in good condition a 2 oz per square yard dressing of ground chalk per annum is ample. On the other hand, soil which has been cultivated for years and is black in colour and full of humus, may be too acid and heavier dressings of hydrated lime may be necessary. Most company's or publicly supplied piped water is alkaline, some of it very strongly so. Where a garden is continually watered with a hose-pipe, a quantity of lime is thereby being added to the soil and this has to be taken into consideration. Rain-water is slightly acid. To ascertain as accurately as possible the desirability of further dressings of lime only a soil-test will serve.

To grow Roses to perfection, or even very well, and to keep the soil in a permanent condition of good fertility, a knowledge of the pH state of the soil is highly desirable. There are several simple soil-testing outfits available, with which approximate tests can be made at home, but they usually only give the reaction on the acid side below pH 7. If a more accurate reading is desired than can be supplied by such outfits, say between pH 4.5 and pH 8, the local county agricultural office might do a test for you, or the National Rose Society might be able to help you.

Some Don'ts

To conclude my notes on manuring, I will give a few "don'ts."

Do not waste your time and your money, and possibly spoil the quality of your plants, by buying "patent" manures or fertilizers.

Do not use any fertilizers of which you do not know the contents exactly. It is not sufficient to know the percentages of nitrogen, phosphorus, and potash, you must know also how those elements are supplied.

Do not use any fertilizer in which the potash element is supplied by muriate of potash.

Do not buy "complete" fertilizers unless the potash element is supplied by the sulphate of potash.

Do not use "National Growmore Fertilizer" for your Roses, for the muriate of potash content may poison them. This fertilizer is meant for your vegetables, not for your Roses.

Do not use proprietary or "special" fertilizers of any kind; it is better to mix up your own.

Do not apply one chemical, sulphate of ammonia or nitrate of potash, for instance, because a plant is backward and you think it wants "bucking up" or needs a stimulant. If a plant is ailing tread the soil round it firmly, and give it really copious watering with plain water. If that does not improve it look for other possible causes of the trouble. The chemicals would probably have killed it anyway.

CHAPTER XI

PESTS AND DISEASES

EVERY beautiful thing in Nature has an ugliness somewhere just as every Rose has its thorns, and the most sophisticated and most highly cultivated beauties are even more liable to the encroachment of ugliness. It is only by continuous care and protection that Her Majesty the Rose can be kept from the corruption of her perfect beauty by crawling and flying enemies and by disease germs which are always waiting for a chance to attack.

Pests

I am not an entomologist and I shall make no attempt to call these beasties by their proper Latin names, though I could copy these out of a book if I wanted to: I shall simply give their everyday names or descriptions.

As soon as spring is well under way there appears one of the first of the despoilers, a small, greenish-grey CATERPILLAR, which moves about and feeds mainly at night-time, so one seldom finds it feeding on the young leaves of the Rose-bushes. During the day it makes a cobweb nest and pulls the edges of the leaves over to cover it. This gives it away to the observant eye. No spray or dust can reach it under this cover and it is best dealt with by looking keenly over the bushes, opening the curled leaves, and squashing the pest.

Fortunately, during the last few years we have had given us an almost complete insecticide, namely DDT, and a regular dusting over the beds by means of one of the many bellows or dust-distributors available will

spread a fine dust over the leaves which is certain death to all insects which touch the powder. The "Acme" dust-distributor is large enough for all ordinary garden purposes, and is the simplest and most efficient dust-distributor that I have ever tried, requiring but a few minutes on a still and windless evening to put a cloud of dust insecticide over the whole garden. The distributor must not be operated too near the plants or the dust will not be fine enough. The object is to send a fine cloud of the powder evenly over the whole bed of plants. This powder will not penetrate to those pests which protect themselves by curling the leaves round them, but when they emerge to feed at night-time, they will come into contact with the dust and be killed.

One of the worst of the early-summer pests is the brownish-red ROSE MAGGOT, which also protects itself by drawing a leaf around it. If this pest remains undetected or does not come into contact with the DDT dust it frequently bores right into the flower-bud and ruins it.

Unlike most other insects, APHIDES or GREEN FLY are not controlled by DDT, and if there is much of an infestation of these they are better dealt with by spraying with "Abol" according to the maker's instructions. If they are sprayed with this thoroughly once or twice during the season they will give no further trouble. This is the only pest for which a spray is necessary; all the others can be controlled by a light dusting occasionally with DDT.

ANTS are an awful pest in my light soil, not because they do damage to the plants directly but because they make their nests all round the stems and roots of the plants and encourage the black aphid which feeds on the roots. DDT or Gammexane powders are now

specially packed for use against ants, and quickly destroy them.

A soil-pest which has given me a lot of trouble is the MILLIPEDE. This is almost black or dark-brown in colour, and something over an inch long when full-grown, and it has a hard, ringed skin. When disturbed it coils itself up into a ring. Millipedes will feed on the Rose-shoots just beneath the surface of the soil, and I have found young ones feeding on the eyes of budded stocks. Naphthalene is the best thing to use against them, and keep a sharp look-out for them when forking or hoeing.

EARWIGS will completely ruin a bloom during a night if they get the chance. Last year after regular dusting with DDT I did not see a single one, though in previous years they have occasionally done a lot of damage.

There are three Sawflies against whose larvae precautions must be taken. One is the SHOOT-BORER, which lays its eggs in the centre of broad pruning-cuts: this is completely foiled by the painting over with Stockholm tar. The second is the LEAF-ROLLER: the periodical DDT dusting will stop this, but once the larvae become active and pull the leaves round them, the dust cannot get to them, and the best thing to do then is to pull off every affected leaflet and burn it. The third is usually, but, I am now told, erroneously, called the ROSE SLUG WORM. If the larvae get going they eat the tender and fleshy portions of the leaves and leave only the skeleton of the leaf remaining. This is completely kept in check by the routine DDT dusting.

DDT Pyrethex No. 2 is a preparation¹ with which I have been experimenting. It contains both DDT and

¹ A specially prepared DDT-Pyrethex R. has now been put on the market for Roses, and I have found this an extremely satisfactory and effective insecticide against all the pests mentioned.

Pyrethrum in a light oil and is distributed by a special atomizer-sprayer. Combining as it does the instantaneous insecticide effect of Pyrethrum on GREEN FLY, etc., and the lasting deadly effect of the DDT, it seems to be an answer to most of our pest problems. I shall be using it next year again and shall look forward to seeing the results. There is always some risk in using an oil spray on young foliage, but in this case the "mist" thrown by the atomizer is extremely fine. It soon evaporates, and providing it is not used too close to the foliage so as to wet it all over, which is wrong, it does not appear to do any harm to the tenderest foliage. Under glass it did do some damage last year, but it may have been my own fault and I am trying it out again. As far as I am concerned this insecticide is at present in the experimental stage, but I recommend it for trial. During the exceptionally dry summer of 1947 I experienced a great deal of damage to both foliage and flower-buds from the GREEN CAPSID BUG. A great deal of harm was done before I discovered the offender. Apparently these insects had migrated from my apple-trees by way of the potatoes and black-currants. Capsids are difficult to find because on the slightest disturbance they fall to the ground and disappear into the soil. I managed to put an end to this invasion by several atomized mists of DDT Pyrethex No. 2 after which I had no further trouble with this particular pest.

I will conclude my collection of the commonest pests with one which has given me more trouble than any other—THRIPS. This is an almost microscopic fly, black when mature, greyish or brownish when young, and about $\frac{1}{32}$ in. long when full-grown. I have a lot of long grass near my Rose-garden, and I suspect that this is where they come from in such myriads. On a hot, sunny

day I have sometimes seen my pink Roses completely covered with them. They do not do much damage to the open flowers but young and opening buds can be completely spoilt, so that they fail to open. 'Madame Butterfly' and her similar varieties and all whites and pale to deep pinks are principally attacked; red roses seem to be immune. It seems that as soon as the calyx breaks and the flower-buds show colour the eggs are laid on or around the sepals, and as soon as the flower-bud begins to develop the insects are sufficiently mature to start biting and feeding on the edges of the petals. The result is that the flower-buds never open properly, the edges turn brown, and they have the appearance of having been burnt or singed. One year, before I learnt the proper treatment, on a bed of thirty-six plants of Hybrid Polyantha 'Van Nes' I did not have one recognizable flower the whole season.

DDT controls Thrips, and a regular weekly dusting at the proper season will deal with them effectively. I am again experimenting with atomized sprays of DDT Pyrethex No. 2, but I am not yet quite certain of the results.¹ To make absolutely certain that I get no damage from this pest before the big national shows, I go round the whole of my plants from which I expect to cut for the show and dust DDT powder on to each bud and opening bloom with a camel-hair mop-brush. A lot of trouble perhaps, but then no trouble should be too great to produce a fine collection of exhibition blooms for the great show of the National Rose Society.

There are a number of friendly insects who do their best to keep down the numbers of our pests by feeding on them; the Ladybird and its larvae for instance (by

¹ After another season's trial I can now thoroughly recommend DDT-Pyrethex R. as being completely effective.

the by, do not mistake the ladybird larvae for some kind of caterpillar; at a casual glance they are somewhat similar). Unfortunately for them our DDT dusts and Pyrethex sprays are equally deadly to both friend and foe. That is one of the minor tragedies of gardening, since the "friends" cannot by themselves give us the competent protection from our foes which is necessary to grow our Roses to perfection.

An important point is to keep the DDT well away from honey-producing flowers where the bees will be busy, or many of the bees will be killed.

Diseases

With intelligent pruning and normally attentive cultivation there are very few diseases likely to beset the Rose, and I shall mention only the more dangerous ones.

CANKER I have already described. It is caused by infection of open wounds, usually at or just below ground-level, and is prevented by painting with Stockholm pine-wood tar.

There are only four other common diseases with which Roses in a properly-cared-for garden may be afflicted. Of course, "in a properly-cared-for garden" there should be no diseases, but this would be to aspire to perfection, so I shall mention the four most likely to occur.

DIE-BACK is caused by bad or inexperienced pruning, (a) by not cutting out entirely any frost-damaged wood; (b) by not eliminating all wood that is decadent, i.e. that has not thrown up a good shoot the previous year; (c) by pruning with shears or secateurs instead of with a knife;¹ and (d) by not cutting in a proper manner, to

¹ A new pruner has now been produced by the Wilkinson Sword Co. which satisfies my exacting requirements and can be recommended with confidence.

leaf-bud or eye, and leaving a snag above the eye. The illustration (Fig. 30) shows the effect of these faults.

The commonest trouble in the Rose-garden is with MILDEW on Rose foliage. Some varieties, and unfortun-



FIG. 30. DIE-BACK DISEASE, THE RESULT OF BAD PRUNING
The snags are dead and the disease is already creeping down the stem.

ately some of the most beautiful, are particularly subject to it. The symptoms are too well known to require illustration. It often starts after a dry spell, and I believe that dryness at the roots is a frequent cause, or at least renders the plant more susceptible to it. While it is not

a dangerous or fatal disease, it must not be neglected. It is easily checked and cured by a colloidal sulphur spray, the same that you would use for Rust; if you spray for Mildew both diseases will be controlled. Colloidal sulphur is an insoluble form of that element in an extremely finely divided state, with the addition of a spreader which makes it easily miscible with water and enables it to adhere to the foliage in an extremely thin film. There are available two preparations of sulphur of a colloidal nature, "Spersul" and "Tulisan," both being in a convenient powder form for mixing with the requisite amount of water. "Tulisan" is an organic compound of sulphur and controls both Mildew and Black Spot as well. Organic sulphur compounds such as "Fermate" are being used in America very successfully in the control of plant diseases, and "Tulisan" appears to have similar but improved properties. It possesses moreover the advantage of being effective in controlling all three of the commonest diseases of roses, but being soluble it is easily washed off by the first shower of rain; it does not therefore give a lasting protection. It is excellent under glass.

Green sulphur may also be used as a dusting powder, but it is not so efficient and does not cover the foliage so well, since the particles of sulphur in dusting powder are very much coarser. No soluble form of sulphur, chemicals such as liver of sulphur (potassium sulphide) or lime sulphur, should ever be used. These can be extremely dangerous and are particularly harmful to young foliage. They have now been entirely superseded by the colloidal preparations for spraying Roses.

RUST disease is highly infectious and spreads quickly from plant to plant of susceptible varieties. The symptoms are a rash of orange-yellow pustules on the underside of the leaves; unless these are disinfected by a suitable

spray they later turn black. The black spores will adhere to fallen leaves on which they will pass the winter, and will cause a reinfection the following year. In order to wet the underside of the leaves thoroughly the sprayer or syringe must be held low and the spray fluid must be directed upwards with the curved or angular nozzle.

About 1935 there was a serious epidemic of Rust. So serious did this become that many thousands of plants were killed by it. Like some epidemics that have afflicted the human race it increased gradually in its incidence, and at its climax great numbers of plants in the Rose nurseries were so damaged as to be unfit for sale and many thousands in private gardens died from the disease. Since then the disease has subsided in virulence, and at the present time it may be considered a minor trouble. I have had only two slight attacks in the last few years, one on 'Hector Deane' and the other on 'Dr. F. G. Chandler.' Both attacks were cleared by spraying with colloidal sulphur, in the form of "Sulsol." This preparation is now off the market, but those already mentioned take its place.

The only really serious disease of Roses to-day is BLACK SPOT, and that requires the most careful attention. Its incidence seems to have been increasing in recent years, and in 1946 it was extremely serious in some parts. I heard of some gardens in which the roses had been completely defoliated, with the result that many plants died the following winter. Even if the plants survive the winter, Die-back may invade the tissues and kill them in the spring. It is well worth while taking a great deal of care, therefore, to keep the trouble in check or to stamp it out completely, as I have done in my new garden.

During the last five years I have had only one serious outbreak and that was caused by an old 'Climbing

Golden Emblem,' left by a previous owner. I was away for about ten days and during that time the disease had spread radially for about 12 ft in all directions, attacking bush after bush beneath the Climber. Even some plants of 'Orange Triumph' had caught the infection; this is usually immune and shows how virulent and infectious is the disease. I knew that if drastic steps were not taken immediately the whole garden would rapidly become infected, and it might then be extremely difficult to eradicate again. First the Climber was carefully cut down so as not to scatter the leaves, and every part of it was burnt. From all the bushes every infected leaflet was collected, the ground was carefully searched for fallen leaves, and the plants were moderately pruned. The plants, including those apparently not infected, and the surrounding soil were then thoroughly sprayed with a colloidal copper preparation. Further treatment consisted in watering the plants with a solution of potassium sulphate and of potassium acid phosphate, $\frac{1}{2}$ oz of each to the gallon of water. The first of these salts strengthens the foliage and the second particularly encourages fresh root action. If potassium phosphate is unobtainable, superphosphate of lime may be used. The results were entirely successful, and with normal routine cultivation and preventive treatment I have never had another attack.

In order to understand the reason for the necessary preventive treatment and special cultivation, some knowledge of the history of the disease is necessary. There are two kinds of spores, summer spores and winter spores; the favourable conditions necessary for the germination and dissemination of the former are an average temperature of about 70° F. upwards, a moist atmosphere, continuous rain, or a heavy dew of not less than eight

hours. Hot weather during June is usually dry so that the favourable conditions do not often occur until July. The spores carry over from the previous year in their winter form on the leaves, on or in the soil, and in the twiggy or young wood of the plants. It used to be considered that these spores were splashed up from the ground by the rain, but the latest investigations suggest that the spores are shot out into the air and are then caught by the wet leaves. Thus the lowest leaves are usually attacked first. On my unpruned 'Climbing Golden Emblem' the spores overwintered in the twiggy wood, which would have been eliminated if they had been pruned, and the spores were shot out and washed downwards by the rain-drops. In this case, therefore, the upper leaves on the plants below were the first to be infected. A single infected leaf can give off something like a million new spores, each one ready to found a fresh colony if it can. Spores are also said to be dispersed by insects and the wind.

The disease cannot be "cured," since a leaf once infected is finished, so far as its use to the plant is concerned, and will soon fall to the ground if permitted. It must be prevented from doing this, and the first steps to prevention of the disease are absolute tidiness and regular hygiene. An infected leaf must never be permitted to fall to the ground, but must at once be pulled off the plant and burnt.

The annual routine being started between mid-March and mid-April, the normal pruning is attended to, great care being taken that no stems or twiggy growths, especially any from near the base of the plant, are allowed to remain on the soil. After pruning, the beds are lightly forked over and tidied up, then the important dressing of about 2 oz to the square yard of potassium sulphate

is scattered over the surface, followed by a good mulching of manure (except round any newly planted roses!). While on the subject of potash, it should be noted again that muriate of potash is *not* a suitable substitute, as I have explained in Chapter IX. If the sulphate of potash is not available then about 6 oz per square yard of wood-ash may be used instead, but bear in mind that this is very alkaline and is not so suitable for roses except as a last resource.

In May the beds should be further mulched with granulated peat or lawn-mowings, and for the rest of the season all lawn-mowings should be lightly scattered over the surface of the beds as and when available. The purpose of this mulching is to prevent any Black Spot spores that have escaped the winter spraying from being shot up or splashed on to the foliage by the summer rains. Then about mid-July commence the summer spraying with a colloidal copper fungicide. Bordeaux mixture, which is made from soluble copper sulphate and quick-lime, has frequently been used for the purpose, but I do not recommend its use. Unless it is mixed with scientific accuracy it can be very dangerous, and I have frequently seen plants defoliated by it. The only copper spray that it is safe to use in summer is an insoluble form such as colloidal cuprous oxide. There are two preparations of colloidal copper available. "Bouisol," which is sold in a liquid form, and "Perenox," which is in a powder combined with its own "spreader." This powder is the most convenient form and the easiest to mix up. It must be used at the strength given in the maker's instructions. When preparing this spray an insecticide can be added, Derris solution (for Red Spider), or Pyrethrum or Nicotine (which will look after any aphides or caterpillars there may be about). The mixed spray may be

Application
used once a month or oftener if the weather is wet and warm. It must never be used in full sunshine, and preferably should be used in the evening, so that it may dry before next day's sunshine.

The next regular treatment is in December and January, and, there being no foliage to harm then, a solution of copper sulphate may be used at 1 oz to the gallon, with a little spreader. After the first application the beds should have their winter forking-over, after which, if there was a bad attack the previous year, a second application may be given, but not later than mid-February, and in any case before any new foliage has commenced to grow.

If it is intended to earth up the plants for winter protection as discussed on another page, the winter spraying must be completed beforehand in December. When the soil has been levelled out as soon as possible after the winter frosts and after pruning is finished, it may be advisable to spray again, but this time with the colloidal cuprous oxide or summer spray, as young shoots may be already starting into growth.

This completes the cycle of cultivation as carried out by me, and the result is that, as already stated, I have no Black Spot in my garden.

Stephen J. Hammett

CHAPTER XII

POT-ROSES UNDER GLASS

THERE are many who love Roses and grow them in their garden, and who also possess a small or not-so-small greenhouse—and yet it never occurs to them to grow a few pot-Roses under glass! They do not realize how much they miss.

Roses must be seen in a glasshouse if they are to be appreciated in their utmost, flawless perfection. There they are protected from most of the ills to which Roses are subject: they are free from rain, storm, and tempest; there are no caterpillars, or at least not many; and with any ordinary care there is no disease of any kind. Every bloom comes to a perfection not often seen in the open garden. With a moderately heated glasshouse the roses can all be timed to come into bloom together in the last week of April, and in glasshouses without heating they will commence blooming in the middle of May, a month to six weeks before there is any show in the open garden.

The cultivation is simple and there are no snags at all. Roses also combine well with chrysanthemums, which tenant the house in the autumn, while the Roses occupy it from Christmas until after the risk of May frosts is over, about 22nd May. Tomatoes can take the floor after that date, if you will, until the chrysanthemums are ready to come in.

Plants can be lifted from the open ground in the autumn, and potted into 7 in. pots, but they will probably be budded on *canina* under-stock, which is not the best for our purpose. The brier *canina* is sluggish when potted

and has not sufficient fine fibrous roots; there is no doubt that the best under-stock for pot-work is the *rugosa*. The only way to make sure of this is to bud your own. In case, however, this budding presents some imaginary difficulties, I will first describe the way of preparing the potting-up of your own plants from the garden, or better still, of fresh maiden plants ordered and obtained from your nurseryman.

When ready, trim the roots so that they will comfortably go into 7½-in. pots, which is their size for the first year. Use the compost as described for the 6½-in. pots of *rugosa* stocks in subsequent pages, and curl the roots round so that they are not trimmed too short. Pot and treat them exactly as described for first-year *rugosa* stock plants. About Christmas-time prune them *hard* and grow them on in the same way as described later, but with the important exception that no liquid manure whatever must be given them the first year. During this first season nothing exciting in flowers must be expected; let them grow as they will. After they have flowered just snip the dead flowers off—on no account cut them with long stems for decoration. The second year they can remain in the same-size pot, but when their season comes round treat them as established plants. In the third year transfer them to 8½-in. pots and carry on as in subsequent pages. However, to get the greatest enjoyment out of Roses under glass I do recommend the budding of your own plants.

Budding *rugosa* stocks in pots is an even easier job than budding in the open ground, and with even moderate skill there should be few failures.

The first year it may be necessary to buy a few rooted *rugosa* cuttings from a nursery, and two or three should be planted in the open ground to provide cuttings for future

years. The cuttings are taken exactly as previously described for *polyantha simplex*, but are laid in trenches in the open ground to root and are ready for use the following year.

The rooted *rugosa* cuttings having been obtained they are potted up in the spring, after the winter frosts are over, in 6½-in. pots, and stood on ashes outside until early July, when they are ready for budding. In my glasshouses I like to mix short standards budded at 18 in. high with the dwarfs; it makes a more varied display.

The soil compost for the 6½-in. pots should be prepared from heavy loam meadow-land top spit, the top 6 in. with the turf, taken from land that has a clay subsoil, and should be stacked under cover for twelve months to get rid of worms and grubs. Worms are one of the gardener's best friends out of doors, but they are an infernal nuisance in pots. It saves trouble to buy some of this material, which is offered by most horticultural sundriesmen. The following is the mixture to be made up—

- 7 parts by bulk heavy loam
- 3 parts granulated peat
- 1 part Bedford horticultural sand
- 1 part river grit or coarse sand

Crush, mix up thoroughly and sieve. Every part of the potting compost must have its share of fertilizer, so that lumps of loam are undesirable. Then add *per bushel*—

- 3 oz hoof-and-horn
- 3 oz bone-meal
- 3 oz superphosphates
- 2 oz sulphate of potash
- 2 oz ground chalk (calcium carbonate)

This prepared potting compost should then be moistened, so that it is uniformly damp—but not running wet—and allowed to stand for a week or two before using.

Now take your 6½-in. pots—washed clean, of course—and place over the drainage-hole a piece of perforated zinc, to keep out worms while the pots are standing outside during the summer, and over the zinc about ¾ in. deep of broken crocks. On top of the crocks I place a thin wad of dried hay for the purpose of preventing the soil from percolating down, mixing with the crocks, and perhaps interfering with the drainage. Then put in a trowelful of the potting compost and press it down firmly. The rooted *rugosa* is held in the pot with the top-most roots about 1 in. below the level of the rim of the pot and then the pot is filled up with the compost, a trowelful at a time, which is rammed firm with the potting-stick. A space of ½ in. is left at the top for watering. The pots are now stood out for budding in due course.

The plants must be watered when they require it, but *only* then. This is ascertained by tapping with the pot-mallet. They will need no other attention for the moment.

They should be budded in early July (see Chapter VIII), two buds on the short standards, one on the dwarfs, and during July they will be making a fair amount of foliage and vigorous root action. By mid-August, the pots will be well filled with roots and it is time to transfer them to a larger-size pot.

Meanwhile, about a month after budding, slit the raffia used for tying in the buds, since, not being in contact with the soil, it will not rot off in the way it does in the open ground. It can then be seen if the “take” is satisfactory. The buds should be plump and the shield green. The plants are now well established and in potting-on a stronger mixture can be used, as follows—

- 7 parts by bulk top-spit loam
- 3 parts granulated peat
- 1 part Bedford horticultural sand
- 1 part river grit or coarse sand

This is as before, but the fertilizer now to be used is stronger, being *per bushel* of the above mixture—

5 oz hoof-and-horn
5 oz bone-meal
4½ oz superphosphate of lime
3 oz sulphate of potash
3 oz ground chalk (calcium carbonate)

N.B. 1 bushel is 8 gallons and equals the space contained in a box 10 × 10 × 22 in. inside measurements.

The 7½-in. size pot now to be used will carry the plant until after its first flowering, i.e. after its first season as a maiden Rose-tree.

The new pot has its perforated zinc, crocks, and wad of hay as before, followed by a small trowelful of the new mixture. The budded stock is knocked out of its old pot and cleared of crocks—at the same time look out for any worms or insects which may have got in. It is then firmly pressed down in the new pot so that the inserted eye is about on a level with the rim. If too low, add a little more compost underneath. Now with a thin wooden label ram down fresh potting compost all round the old ball of soil and press the fresh soil firmly on top with the fingers, leaving about $\frac{3}{4}$ in. to the rim for watering. Replace its label and stand it outside again for the autumn.

At the beginning of December all the pots are brought under cover. A light airy shed would answer the purpose, or if there are no other plants in the greenhouse they can stand there with all the windows and ventilators open. The purpose of this is to let the pots dry out and the plants rest thoroughly. If the soil in the pots is very wet and there is no appreciable growth taking place, the soil will certainly get sour; also it would be difficult to prevent the stocks from bleeding for days at heading-back

time. The Christmas holiday is a good time for heading-back, and this is done as in the open ground. Cut the stem of the stock first with the secateurs, and then trim it with your very sharp pruning knife. The knife should commence almost on the level of the bud on the opposite side of the stock and come through to a $\frac{1}{4}$ in. above the bud. It is not a usual practice but I next prefer to cover the cut immediately with Stockholm tar. This seals up the wound, stops any bleeding, and prevents risk of "die-back" of the stock.

The scions will commence to grow early in February, and this is the time when, if you have a little heat available, you will be sowing your early lettuce seeds, mustard-and-cress, tomatoes, or other vegetables. During February a minimum night-time temperature of 45° F. is ample for the Roses, and about 50° F. in the daytime. The buds may throw out one or two shoots—if only one shoot, it is best to cut it back, when about 3 in. long, to $\frac{1}{4}$ in. from the stock; it will then grow again with two shoots, which is what is desirable the first year.

Water the pots only when they *need* water. I have made myself a little mallet of $1\frac{1}{2}$ in. round pine-wood roller, about $2\frac{1}{2}$ in. long and rounded at the end. I have drilled this on the side and stuck into it a short length of cane. If the pots when tapped with this little mallet emit a dull tone they have sufficient water. If the pots give out a ringing tone they need water. Of course, cracked pots never ring and their condition must be guessed from the others. When watering them, give them ample to soak them thoroughly. See that the water does not run down between the side of the pot and the ball of soil; as the soil dries it naturally shrinks and when watered again may let the water escape down the side and not soak through the soil. Press the edge of the

soil firmly with the fingers against the side of the pot before watering. The pots will not need watering again until they emit a ringing tone.

At the beginning of March the plants will be in full growth, and can now be given some liquid manure. This is the same as recommended for the open ground, but I will repeat it here.

Dissolve each chemical separately in hot rain-water and after dissolving mix together in a wooden tub or other non-metallic container—

5 gallons of rain-water
 5 oz sulphate of ammonia
 10 oz nitrate of potash
 2 lb superphosphate of lime
 1½ lb sulphate of potash
 6 oz sulphate of magnesium
 2 oz sulphate of iron.

or any appropriate quantity in the same proportions.

For use, take half a pint of this to a 2-gallon can of water.

It may be objected that these are very young plants for “artificial” or chemical manures, but it must be remembered that the stocks have been a full year in pot; the roots are well established and are now capable of taking it.

This manure can be given at every watering. At the end of March and in April increase the strength to 1 pint to the 2-gallon can.

If heat is available the standard temperatures to be aimed at in the house are—

from 8 February	.	night-time 45°–50° F. daytime 55°–60° F.
„ March	.	night-time 50°–60° F. daytime 60°–65° F.
„ April	.	night-time 60°–65° F. daytime 70°–75° F.

These temperatures are calculated for a peak period of blooming on 30 April, subject to pruning according to the scale given later.

If the plants are to be grown "cold," at least try and keep the frost out with an oil-lamp. In this case the chemical manures must be used much more sparingly; the plants should be treated with them only when they are well advanced and when the temperatures, owing either to the weather or to the heating available, are at the standard figures given. If the temperatures are much below these figures, then water only should be given and that very carefully and only when really needed, as found by tapping with the little mallet. Of course, a maximum-and-minimum thermometer must be kept hanging in the house.

At the standard temperatures the plants will come into bloom about the third or fourth week of April; if "cold," about three weeks later. I hope that in either case you will have the supreme joy of seeing really perfect prize blooms. To obtain the finest prize blooms don't forget to disbud the side buds, so that there is only one bloom to each stem.

During the growing period there must always be a little circulation of fresh air, for stagnant air may cause mildew. On the other hand, a draught of any kind will certainly cause mildew and the top ventilators should be opened only the minimum amount necessary; side ventilators must never on any account be opened, not even a crack. When the weather warms up, open the top ventilators accordingly, and endeavour to keep to the standard temperatures. In April this will be difficult, I know, and some arrangement of blinds for shading will become essential. I have made myself a set of roller-blinds of muslin, and from the eaves to the ridge I have

stretched wires, about 3 in. from the glass, on which to run the rollers.

In the steel-frame house I have stretched wires from end to end at the ridge and at intervals of 2 ft, an inch or two from the glass. Loose muslin blinds with brass rings are threaded on the top wire, and the muslin hangs over, and is supported by, the other wires. With a cane these blinds can easily be pushed aside or into position whenever required. Never let direct sunshine fall on the plants, for it may scorch the foliage or even the petals of the blooms. Using only top ventilation I have never had the slightest trace of mildew, and so far as my experience goes there never should be any, so there is no object in suggesting remedies.

But pests you certainly will have. Greenfly must be dealt with as soon as they appear—I cannot imagine how they come, but come they will. The best remedy is fumigation with nicotine. Paper shreds saturated with the stuff (as sold for the purpose) can be placed on the floor and burnt, but I have found a small fumigator for liquid nicotine, with a spirit-lamp to heat it, the most efficient. Do not fumigate with nicotine if you have tomato-plants in the house, as it will probably kill them; take them all out first.

Caterpillars also you will certainly get, small greeny-grey beasts, which can do a lot of harm. They can only be dealt with by hand. Keep a sharp look-out and squash them when you find them—but do not spoil the leaf as well, for every leaf is noticeable under glass. Never spray under glass, or you will spoil all the effect of the beautiful foliage. Careful and light treatment with DDT-Pyrethex R is, however, permissible and effective. The “atomizer” should not be less than 2 ft. from the plants.

The most obnoxious pest of all is the reddish-brown

Rose Maggot. How I hate it! I am not sadistic by nature, but I do enjoy slaughtering one when I find it. If you miss one it will quite probably make its way to the actual flower-bud and eat into its side, spoiling one of the best blooms of all time!

When your blooms have come to perfection do not be afraid to cut them—with long stems now—and take them indoors to enjoy. At this time of year they will stand in a vase for over a week in perfect condition. When you cut them, cut them in the *very* early morning; or better still cut them in the evening, slit the stems up an inch and stand them in a deep vase, up to their necks if possible, in a cool place for the night.

After 23 May there is little likelihood of frost (in the south of England), so the pots can then be moved out of doors to stand not in full sunshine but where they can get some shade during part of the day. Except for watering as required, I do nothing more with them until about September, but occasional weeding may be necessary.

Meanwhile in the spring you will have potted up a few more *rugosa* stocks for budding again in July, to carry on the same sequence.

About September, last year's 7½-in. pot maiden plants are overhauled. Knock them out of the pots and examine them. The roots may have completely filled the pots, in which case I should put them into 8½-in. pots.

Pull out the weeds and all the loose soil possible from the top by poking it with a wooden label or pointed stick. Disentangle all the crocks at the bottom of the ball of soil, and prepare and pot up in the 8½ in. exactly as before, but using the richer potting compost.

At the beginning of December I get all of them under cover again, to tidy up the surface of the soil and attend

to any weeds. The drainage is examined to see that it is perfectly free, and any roots that have grown out of the bottom of the pot are cut off. The pots are then laid on their sides and from the top of each as much soil is poked out as will easily dislodge. They are then topped-up again with fresh potting compost, kept nicely moist but not wet, which is firmly pressed down with the thumb or finger, the surface being neatly levelled off.

Sometimes a *rugosa* sucker may grow from the roots; in this case the plant must be knocked out of its pot and the sucker, which may be growing round the side of the pot, must be carefully disengaged and cut off. Loose soil can then at the same time easily be poked off the top. Replace the plant firmly and top-up.

A small partitioned-off part of the glasshouse may still be reserved for late chrysanthemums, but the rest can be opened wide and a little frost does not matter. By the time pruning is due the soil in the pots will be on the dry side, which is to be desired.

Pruning the two-year-olds has now to be considered more carefully. If it is wished to have them all in bloom at the same time they must not all be pruned at once. The twelve really top-notch varieties I recommend as a commencement of the collection take the following time between pruning to a good eye and the formation of the full bloom.

VARIETY	WEEKS
'Crimson Glory' . . .	about 13
'Cherry' . . .	„ 13
'Dame Edith Helen' . . .	„ 13
'Dr. F. G. Chandler' . . .	„ 13
'James Rea' . . .	nearly 14
'McGredy's Pink' . . .	about 13½
'Madame Joseph Perraud' . . .	„ 13½
'Percy Izzard' . . .	„ 15
'Phyllis Gold' . . .	„ 14

VARIETY	WEEKS
'The Doctor'	11½
'William Moore'	13½
'William Harvey'	13½

These times I have found to be approximately correct over a number of years, but conditions may vary elsewhere. If, therefore, you desire the fullest flush of blooming on, say, 30 April, and you are able to give the moderate amount of heating necessary to keep to the standard temperatures of the house as given previously, then all you have to do is to reckon back the appropriate number of weeks and you have the date on which they should be pruned. On the other hand if the peak period of blooming is desired for, say, 23 April, then both the pruning and the heating at the given temperatures should be antedated by seven days. If the house has no heating, then the blooming will be three weeks or so later, but to a large extent you will be at the mercy of the weather conditions outside, and owing to the vagaries of climatic conditions the time may be very uncertain. If, however, you can keep actual frost out with an oil-lamp, you can reckon on the full flush of flowering about the third week in May.

The pruning should be carried out on the same principles as given in Chapter VII, but under glass it must be very much harder, down to a well-developed eye quite near the base. In pots, if the finest blooms are to be obtained, the number of shoots allowed to grow must be restricted to four shoots, with one disbudded bloom to each shoot.

As the shoots commence to grow all the superfluous ones must be rubbed off at once. Keep rigorously to four shoots only. If you prefer to have six blooms of moderate quality, then allow six to grow, but I do not advise it.

I prefer four fine blooms to six moderate ones or to ten poor ones.

The plants need never go into a larger pot than an 8½ in. In subsequent years, the same routine is carried out; when they are brought under cover again in preparation for the next season, try and poke out from the top as much of the old soil as possible, and replace it with fresh potting compost. Treated in this manner there is no reason why a pot-Rose should not carry on for a great many years. I know some that have been a continual joy in their season for over fifteen years in the same-size pot.

CHAPTER XIII

ROSE-SHOWS

EXHIBITING Roses is great fun and great sport. All keen Rose-growers should try their hand at it, for only by so doing can they learn by comparison how good their Roses are, or how bad. Surely if you take a pride in your Rose-garden you should be anxious to put your blooms up against the other man's in competition and to let a competent judge say which is the better.

No one need be afraid of being outclassed by the bigger growers, for at all shows there is some measure of handicapping and even at the great shows of the National Rose Society there are classes for "growers who have never shown before," for "those who have never won a first prize," and so on, as well as for those who have certain given numbers of plants, 100 plants, 250 plants, and so on. Once you have made a start you will always want to show again and to keep on showing, for you will meet all the growers of the Rose world, great and small, and you will find them the most friendly crowd in existence, all united by that common love of the Rose. Believe me you will gain all the help and assistance possible and you will never regret it.

To take up showing seriously you have to pay a lot of attention to plants at the proper season, and your methods have got to be rather more careful and a little different from what is appropriate for growing solely for garden decoration.

At the big national shows or provincial shows in association with the National Rose Society there is a list

of certain large-sized Roses which are termed "Specimen Bloom" Roses; these are barred from being entered in the so-called "Decorative" classes and they must be entered only in their own special classes. All Roses are considered by the judges according to their particular quality in their own particular variety, but, though a small "Decorative" variety can be just as good a Rose as a big exhibition Rose, human nature being what it is, the judges might sometimes be inclined to favour mere size if the two were shown side by side. That is why the naturally big ones have to be segregated, so that they shall not appear to dwarf the smaller "Decoratives."

Pruning

The pruning of the plants for decorative Roses—this includes the Hybrid Polyanthas and all other varieties except the special list of "Specimen Bloom" Roses—is carried out as described in the chapter on pruning. The "Specimen Bloom" Roses, however, may be treated a little differently, particularly as regards any branches (or laterals) from the main stems. If there is more than one lateral they should all be cut away down to the one which is to be retained, and this is pruned to about one-third of its length. Alternatively cut away all branched stems and prune to a good eye on the main stem. The object now is to grow one good shoot only, from the pruning-cut on each main stem, and on each shoot one bloom only. The plant will not carry more first-class "exhibition" blooms than this, and every eye that breaks into growth lower down the stem must be rubbed out at once. In due course the side-buds, as soon as they are large enough, are rubbed away, "disbudded."

The aim should be to try and bring all varieties to their complete perfection on the date of the show, but

this will not be possible if the garden is pruned indiscriminately at any time during March and April. Every variety takes its own time from the date of pruning to perfect flower, and will vary also according to locality, and climate, and the pruning date must be adjusted accordingly. The method adopted in pruning will also considerably affect the timing to the mature bloom. With light or long pruning the time taken will be less: this applies more particularly to the "Decoratives." Hard or very short pruning, whether from choice or imposed by the effects of frost, will mean a longer time, up to perhaps a week extra. The times will also be affected by all sorts of other conditions, and knowledge of the actual time to prune in your own garden must be gained by experience.

The following list includes a number of varieties which have not been mentioned before but which keen exhibitors will want to try as soon as they can extend their collection. As a rough guide the time taken in my own garden in Middlesex is given. Those varieties marked * are the big "Specimen Blooms" as scheduled by the National Rose Society; the others are "Decoratives."

VARIETY	WEEKS	VARIETY	WEEKS
*'Barbara Richards'	13	'Lady Sylvia'	12
*'Candeur Lyonnaise'	15	*'Lemon Queen'	15
'Crimson Glory'	12	'Mabel Francis'	12½
*'Dame Edith Helen'	12½	'McGredy's Pink'	13
'Dr. F. G. Chandler'	13	*'McGredy's Ivory'	12
*'Directeur Guérin'	12	*'McGredy's Yellow'	12
'Ena Harkness'	11½	'Madame Joseph	
'G. Duisberg'	12	Perraud'	12½
*'Glory of Rome'	15½	'Mrs. L. B. Coddington'	11
'Golden Melody'	13	'Mrs. Henry Bowles'	13
'Hector Deane'	10½	'Mrs. Sam McGredy'	12
*'Julien Potin'	13	*'Percy Izzard'	14
'Lal'	11½	*'Phyllis Gold'	13
*'Leni Neuss'	14	'Picture'	10½

VARIETY	WEEKS	VARIETY	WEEKS
'Polly'	12½	*'Sam McGredy'	11½
*'President Charles Hain'	13	'Sir Henry Segrave'	12
'President Herbert Hoover'	12½	'Southport'	11
*'Red Ensign'	12½	*'The Doctor'	11
*'Rex Anderson'	12½	*'William Moore'	12
		'Weigand's Seedling'	10

In the last two weeks in May I give once a week the liquid chemical manure described in Chapter X. The first two weeks in June I give the same with a heaped-up teaspoonful of dried blood to the 3-gallon can. Once again, remember that only established and vigorously growing plants must receive this liquid manure. The 3-gallon can goes round about twelve plants, and if the weather is dry I give them plenty of water previously. The last two weeks in June I give the manure twice a week, again with plenty of watering if necessary. The plants are 18 in. apart and the manure is given midway between them. The concentrated manure you will remember is made up with rain-water, but it is diluted with tap-water, which provides lime.

Now this is pretty strong diet and I repeat the warning that if it is given to young or immature plants it might quite well kill them. The plants should be watched carefully every day to see if they are suffering from any ill-effects or symptoms of indigestion. I once nearly killed a batch of 'Mabel Turner,' a large pink "Exhibition" Rose, but fortunately was able to take them in hand in time. Going my round early one morning I could see that they were ailing, for the stems were limp and drooping and the foliage was turning quite pink. They were suffering badly from indigestion, but by thoroughly soaking the bed, with 4 or 5 gallons to each plant, I was able to wash away the excess of fertilizers, and in a few days they had quite recovered again.

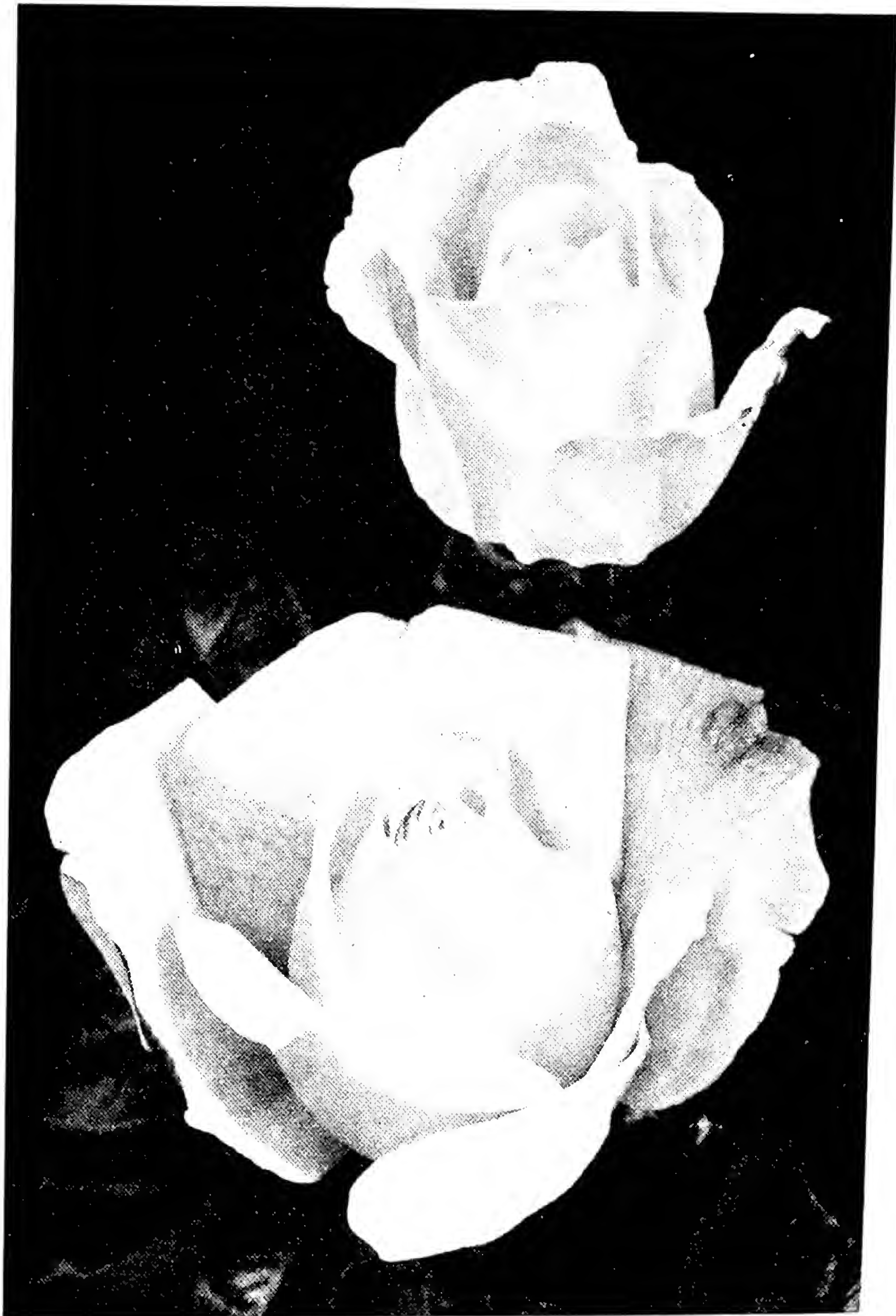


FIG. 31. 'PEACE.' PALE YELLOW TINTED WITH PINK ON THE EDGES OF THE PETALS

The liquid manures are best given in the early morning as the light and warmth of the sun during the length of the day enables the plant to take up the food. On a dull day it should be given much more sparingly, and it should not be given in the evening because the plants do not feed at night-time, so that to a large extent the liquid would be wasted; it merely sours the soil if it is not used.

After the summer shows the plants grow as they like and receive no more liquid manure until they are being prepared for the autumn show in September. As the show time approaches, the shades or bloom-protectors must be ready, not only to keep excessive sunshine from the blooms in the middle of the day but also to protect from rain and storm. A week before the show the entries have to be made and one has to make up one's mind what classes to prepare for and to estimate the number of blooms required to fill them. For a vase of six blooms I always reckon that ten blooms will be needed, for some will not be quite ready and some may be overblown at the last hour. For a box of six "Specimen" blooms again at least ten blooms must be about ready, for they have to be in their utmost state of perfection at 11 o'clock on Show-day. Three days before the show the blooms should be lightly tied round with some soft tying material. Thick white "Berlin" knitting-wool used to be ideal but, alas, is no longer obtainable, and the nearest thing to it should be provided. I have lately obtained some white "artificial silk" rug wool, which answers the purpose excellently. The tying serves the purpose of preventing the blooms from opening too quickly, and apparently makes them grow longer in the petal. The blooms must be absolutely dry when tied and must be then covered by the protectors as they must not be allowed to get wet.

Cutting starts the evening before the show: the best time for cutting Roses is always in the evening, after the sun is off them. They are placed in water immediately and those for the "Decorative" classes *must* be cut with long stems. Yes, I know this is "one degree of plant-slaughter," but when one goes in for the sport of Rose showing one must face the possibility of sometimes temporarily spoiling one's plants, and then having to nurse them afterwards. Plants from which "Decorative" blooms are cut are never cut again during the summer. The cut blooms are taken to the potting-shed where they are carefully stripped of thorns, for it is impossible to arrange stems in a vase with thorns sticking out at all angles. The lower leaves are also stripped and the end of the stem is slit for about 2 in. They are then placed in as deep a vase or pail as is available, up to their necks if possible, there to rest in a cool place for the night. The "Specimen" blooms, of course, need be cut with only quite short stems, just long enough to go into the proper tubes. In the "Decorative" classes vases and baskets are provided, but in the "Specimen" classes special boxes must be used according to the show regulations; the boxes can be obtained from Messrs. John Pinches, Ltd., the suppliers to the National Rose Society.

Some reeds or cut pieces of *Lonicera nitida* should be prepared, with which to pack the vases on the show-bench. This helps to make the stems "stay put" where you want them. If the stems are at all bent or thin they should be wired with iron stub wire; this also fixes the blooms in their places. On show-day I am up by 3.30 a.m. putting final touches. If it is possible to carry the Decoratives to the show in water it is best to do so. The "Specimen" blooms, of course, have their water-tubes fixed in the boxes and an extra box is taken to carry the

spare blooms in case they are needed. If a car is not available the "Decoratives" must be laid flat in boxes with plenty of tissue-paper to prevent them moving or rubbing while the boxes are being carried.

If you have a number of entries it is as well to be at the show-hall *early*. I am always there before 6 a.m., and I am by no means the first—the nurserymen arranging their trade exhibits have been there all night. With only one or two entries 9 o'clock, say, is early enough, but it is essential not to be hurried at the last minute. Judging is at 11 o'clock, and when the bell goes for exhibitors to leave the hall everything must be ready, the ties removed, and the entry-cards in front of your stand.

When you are allowed into the hall again let us hope that there will be a red label on your card, or perhaps a blue one, or at least a green for third prize. If there is no label at all you must not feel disappointed, for if you are making an exhibit for the first time you will have learnt a lot by watching closely how other exhibitors stage their blooms, and all your competitors will have done everything they can to help you. Rivalry for the winning labels is keen, but the keenest competitor will be only too delighted to give you every possible assistance. That is what gives the intense satisfaction of Rose-showing—you meet and make so many good friends. Some of the best friends I have ever made have been my most "hated rivals" at Rose-shows, and show-days have been, and I hope ever will be, among the happiest days of my life.

APPENDIX

THE NATIONAL ROSE SOCIETY

THE National Rose Society exists for the purpose of encouraging and assisting amateur gardeners to grow their Roses better. It is not a society which exists in order to make a profit, and subscriptions are utilized entirely for the benefit of members. Moreover, many of the foremost amateur and professional Rose-growers in the country give their time and services free and freely for the benefit of members and of Rose-growers generally throughout the world. There is no difficulty or doubt that any member may have on the subject of our hobby that will not receive a prompt and authoritative answer if it is sent up to the offices of the Society. There are also a number of regional representatives in different parts of the country, who are equally competent and willing to give assistance to members who apply to them for advice.

Two great exhibitions are held every year in London, one about the end of June and the other about the middle of September. Provincial shows are also held or special classes are reserved for members at the shows of the leading provincial horticultural societies affiliated to the National Rose Society.

The Rose Annual, one of the important publications in the world on the subject, is issued in March. It contains numerous articles by experts and all the latest information, and is fully illustrated in both colour and half-tone. This is issued to members free of charge, together with other handbooks which are also free. There is an extensive library for reference, from which books may be borrowed.

If you are really interested in our national flower, is it not worth while becoming a member?

Finally if there is anything in this little book that I have not made clear or if there is any more information which I can give, write to me c/o The Secretary, The National Rose Society, 117 Victoria Street, S.W.1, and I will do anything further that I can to help you with your cultivation of THE ROSE.

INDEX

- 'ADAM,' 3
- 'Alberic Barbier,' 44
- 'Albertine,' 44
- 'Allen Chandler,' 40
- 'American Pillar,' 44
- Ammonium sulphate, 95
- 'Anne Poulsen,' 36
- 'Antoine Ducher,' 8
- Ants, 103
- Aphis, 103
- 'Austrian Brier,' 5
- 'Austrian Copper,' 46

- 'BABY FAURAX,' 35
- 'Barbara Richards,' 33, 68, 130
- Basic slag, 98
- 'Betty Prior,' 36
- 'Betty Uprichard,' 9
- Blackspot, 110
- Blood, dried, 97
- Bone-meal, 97
- Bordeaux mixture, 113
- Bouisol, 113
- 'Bourbon Rose,' 3
- Brier standard stocks, 80
- Broegs* stocks, 80
- Budding, 81

- CALCIUM (lime), 94
- 'Cameo,' 35
- 'Candeur Lyonnaise,' 130
- Canina* stocks, 76
- Canker, 107
- 'Cathrine Kordes,' 8
- Chalk (lime), 97
- 'Chaplin's Pink,' 11, 16, 44
- 'Charles Gregory,' 33
- 'Château de Clos Vougeot,' 8
- 'Claudius Pernet,' 6
- 'Climbing Etoile de Hollande,' 9
- 'Climbing Lady Hillingdon,' 40
- 'Climbing Mme Butterfly,' 40
- 'Climbing Mme Caroline Testout,' 40
- 'Climbing Mme Edouard Herriot,' 40
- 'Climbing Shot Silk,' 9
- Colloidal sulphur, 109
- Compost, 91
- 'Coral Cluster,' 35
- 'Crimson Conquest,' 44
- 'Crimson Glory,' 8, 29, 130
- Cuttings, 80

- DDT, 102 *et seq.*
- 'Dainty Maid,' 36
- 'Dame Edith Helen,' 26, 130
- Die-back, 61, 107
- 'Directeur Guérin,' 130
- 'Dorothy Perkins,' 11, 39, 44
- 'Dr. F. G. Chandler,' 31
- 'Dr. Van Fleet,' 44

- EARWIGS, 104
- 'Easlea's Golden Climber,' 44
- 'Eblouissant,' 35
- 'Edith Cavell,' 35
- 'Edouard Renard,' 27
- 'Ellen Poulsen,' 11, 35
- 'Else Poulsen,' 35
- 'Emily Gray,' 44
- 'Ena Harkness,' 8, 31, 130
- Epsom salts, 97
- 'Etoile de Hollande,' 29
- 'Evelyn Thornton,' 35
- 'Excelsa,' 44

- 'FELICIA,' 52
- 'Fireglow,' 35
- Fish guano, 97
- 'Fortschritt,' 36
- 'Frensham,' 36, 37
- Frost damage, 67

- GAMMEXANE, 103
- 'Geheimrat Duisberg,' 31, 130
- 'Général Jacqueminot,' 8
- 'George Dickson,' 66
- Glasshouse Roses, 115

- 'Gloire de Rosomanes,' 8
 'Gloire du Midi,' 35
 'Gloria Mundi,' 35
 'Glory of Rome,' 19, 130
 'Golden Dawn,' 33
 'Golden Melody,' 33, 130
 Green capsid bug, 105
 Green fly, 103

 'HECTOR DEANE,' 28, 130
 Hoof-and-horn, 97
 'Hoosier Beauty,' 8
 'Hugh Dickson,' 66
 Humus, 93
 Hybrid Musks, 16, 52
 Hybrid Perpetual, 3
 Hybrid Polyantha, 35, 69
 Hybrid Wichuraiana, 72
 Hydrated lime, 97

 'IDEAL,' 35
 Iron sulphate, 95, 97

 'JOSEPHINE WHEATCROFT,' 35
 'Julien Potin,' 6, 130

 'KAREN POULSEN,' 35
 'Kirsten Poulsen,' 36

 LADYBIRD, 106
 'Lady Battersea,' 8
 'Lady Gay,' 44
 'Lady Mary Fitzwilliam,' 8
 'Lady Sylvia,' 15, 26, 130
 'Lady Waterlow,' 40
 'La France,' 8
 'Lal,' 28, 130
 Laxa stocks, 76
 'Lemon Pillar,' 40
 'Lemon Queen,' 130
 'Leni Neuss,' 130
 'Liberty,' 8
 Liver of sulphur, 109
 'Lyon Rose,' 8

 'MABEL FRANCIS,' 29, 30, 130
 'Mabel Turner,' 130
 Maggot, rose, 103
 Magnesium (Epsom salts), 94
 Maiden plants, 65
 Manures, 90
 'McGredy's Ivory,' 24, 130
 'McGredy's Pink,' 25, 27, 130
 'McGredy's Sunset,' 32
 'McGredy's Yellow,' 31, 130
 'Mermaid,' 39
 Mildew, 107
 'Minnehaha,' 44
 'Mme Abel Chatenay,' 8
 'Mme Alfred Carrière,' 9, 40
 'Mme Antoine Ducher,' 6
 'Mme Bravy,' 8
 'Mme Caroline Testout,' 8
 'Mme Edouard Herriot,' 6
 'Mme Grégoire Staechelin,' 40
 'Mme Joseph Perraud,' 130
 'Mme Melanie Soupert,' 8
 'Mme Victor Verdier,' 8
 'Mrs. Henry Bowles,' 27, 65, 130
 'Mrs. L. B. Coddington,' 29, 130
 'Mrs. Sam McGredy,' 6, 32, 131
 'Mrs. W. J. Grant,' 8
Multiflora japonica, 77
 Muriate of potash, 97

 NATIONAL Growmore Fertilizer, 101
 National Rose Society, The, 137
 Nitrate of potash, 97
 Nitrogen, 95
 'Nur Mahal,' 52

 'OPHELIA,' 24
 'Orleans Rose,' 35

 'PAUL'S SCARLET,' 11, 16, 44
 'Peace,' 32, 131
 'Penelope,' 52
 'Percy Izzard,' 130
 Perenox, 113
 Persian Yellow, 6
 pH, 76, 98
 Phosphate of ammonia, 96
 Phosphorus (phosphate), 95
 'Phyllis Gold,' 32, 130
 'Picture,' 5, 26, 131
 Planting mixture, 54
Pollmeriana, 80
 'Polly,' 24, 131
 Polyantha, 35, 71
Polyantha simplex, 77
 Pot Roses, 115
 Potassium (potash), 94, 95
 Potassium sulphide, 109
 'Pres. Charles Hain,' 131

'Pres. Herbert Hoover,' 33, 131
 'Poulsen's Bedder,' 36
 'Poulsen's Copper,' 36
 'Poulsen's Pink,' 36
 Pruner, 60
 Pruning for show dates, 130
 'Purity,' 42, 43

'RAYON D'OR,' 6
 'Red Ensign,' 8, 131
 'Rex Anderson,' 68, 131
 'Richmond,' 8
 'Robin Hood,' 52

Rosa—

cantabrigiensis, 51
chinensis, 3, 8, 34
damascena, 7, 8
Fargesii, 47
Fedtschenkoana, 51
foetida, 5, 8
gallica, 3
Hugonis, 48, 51
indica, 8
lutea, 5, 7, 8
machrophylla, 47
microphylla, 49
mirifica, 49
moschata, 9
Moyesii, 47
multiflora japonica, 11
oxydon, 50
pendulina, 49
pisocarpa, 38, 49
pollmeriana, 80
polyantha simplex, 11
primula, 52
rapa, 51
Roulettii, 35
rubrifolia, 47
rugosa atropurpurea, 51
rugosa scabrata, 51
Scharnkeana, 51
Schweginzowii, 47
sericea nigra, 51
sericea pteracantha, 46
spinosissima altaica, 51
Watsoniana, 49
wichuraiana, 11, 42
Willmottiae, 46
Wilsoni, 50

Rose Annual, The, 137

'Rose du Roi,' 8
 'Rosenelfe,' 36
 Rose-sick soil, 21
Rugosa stocks, 76
 Rust, 107
 'SAM MCGREDY,' 131
 'Sanders' White,' 42
 Sawflies, 104
 'Sensation,' 8
 'Shot Silk,' 33
 Shrub Roses, 52
 'Signora,' 33
 Silicon (sand), 95
 'Sir Henry Segrave,' 131
 Sodium (soda), 94
 'Soleil d'Or,' 8
 'Southport,' 8, 29, 131
 Specimen blooms, 129
 Stockholm tar, 64
 Sulphate of ammonia, 95, 96
 Sulphate of iron, 97
 Sulphate of magnesium, 97
 Sulphate of potash, 98
 Sulphur, 95, 98
 'Superba,' 35
 Superphosphate, 95

TEA Rose, 3
 'The Doctor,' 26
 'The New Dawn,' 44
 'Thelma,' 44
 Thrips, 105
 Tulisan, 109

'VAN NES,' 36
 'Vanity,' 52
 'Veilchen Blau,' 44
 'Violinista Costa,' 27, 28
 'Viscountess Folkestone,' 5

'W. E. CHAPLIN,' 8
 'Weigand's Seedling,' 131
 'Wheatcroft's Baby Crimson,' 35
 'Wheatcroft's Golden Polyantha,' 36
 Wichuraiana Rambler, 42, 47
 'William Harvey,' 8
 'William Moore,' 131
 'Willowmere,' 8
 Wood ash, 98, 113

ZÉPHIRINE DROUHIN, 9

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